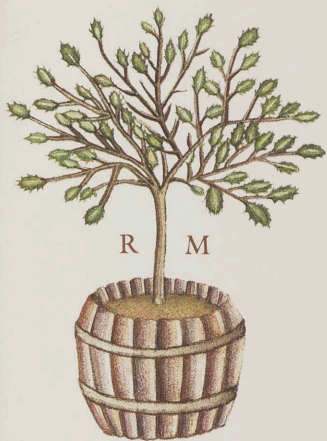


Boncel





Oak Spring Garden Library

HIS MAIESTIES
GRACIOVS LETTER TO THE
EARLE OF SOVTH-HAMPTON,
Treasurer, and to the Councell and Company of
Virginia heere: commanding the present setting up
of Silke works, and planting of Vines in Virginia.

And the Letter of the Treasurer, Councell, and Company, to
the Gouvernour and Councell of State there, for the strict exe-
cution of his Maiesties Royall Commands herein.

Also a Treatise of the Art of making Silke:

OR,

Directions for the making of lodgings, and the breeding, nourishing,
and ordering of Silkwormes, and for the planting of Mulbery
trees, and all other things belonging to the Silke Art.

Together with instructions how to plant and dresse Vines, and
to make Wine, and how to dry Raisins, Figs, and other fruits,
and to set Oliues, Oranges, Lemons, Pomegranates,
Almonds, and many other fruits, &c.

And in the end, a Conclusion, with sundry profitable
remonstrances to the Colonies.

Set foorth for the benefit of the two renowned and most
hopefull Sisters, *Virginia, and the Summer-Ilands.*

By *John Bonoeil* Frenchman, seruant in these employments
to his most Excellent Maiesty of Great Brittain,
France, Ireland, Virginia, and the Summer-Ilands.

Published by Authority.

London Printed by *Felix Kyngston.* 1622.



Published by Authority

London Printed by I. W. K. 1622.



JAMES R.

Right trusty and welbe-
loued, We greet you
well: Whereas We
understand, that the
Soyle in Virginia
naturally yeeldeth store of excellent
Mulbery trees, We haue taken into
Our Princely consideration, the great
benefit that may grow to the Aduen-
turers and Planters, by the breed
of Silkwormes, and setting vp
of Silkworke in those parts. And
therefore of Our gracious Inclination
to a designe of so much honour and ad-
uantage to the publike, Wee haue
A 3 thought

thought good, as at sundry other times,
so now more particularly to recommend
it to your speciall care, hereby charging
and requiring you to take speedy order,
that our people there, vse all possible di-
ligence in breeding Silkwormes, and
erecting Silkeworkes, and that they
rather bestow their trauell in compas-
sing this rich and solid Commodity,
then in that of Tobacco; which besides
much vnnecessary expence, brings with
it many disorders and inconueniences.
And for as much as Our seruant, Iohn
Bonoel hath taken paines in setting
downe the true vse of the Silkworme,
together with the Art of Silke making,
and of planting Vines, and that his ex-
perience and abilities may much con-
duce to the aduancemēt of this busines;
We doe hereby likewise require you to
cause his directions, both for the said
Silke-

*Silkeworkes and Vineyards, to bee
carefully put in practice thorowout our
Plantations there, that so the worke
may goe on cheerfully, and receiue no
more interruptions nor delays.*

*Giuen vnder Our Signet, at our Palace
of Westminster, the ninth day of Iuly, in
the twentieth yeere of our Raigne of
England, France and Ireland, and of Scot-
land the five and fiftieth.*

*To Our right trusty and right welbeloued Cousin and
Councillour, HENRY, Earle of South-hampton,
Treasurer of our Plantation in Virginia, and to
Our trusty and welbeloued, the Deputy, and others
of Our said Plantation.*

Virginia.

Windebank.



THE
TREASVROVR
COVNCELL AND COM-
PANY OF VIRGINIA, TO THE
Gouernour and Councell of State
in Virginia residing.

After our very hearty commendations :
His Sacred Maiesty, out of his high
wisedome and care of the noble Plan-
tation of Virginia, hath been graci-
ously pleased to direct his Letters to vs
heere in England, thereby commanding vs to aduance
the setting up of Silke workes, and planting of Vine-
yards ; as by the Copy herewith sent, you may perceiue.

The intimation of his Maiesties pleasure, wee con-
ceiue to be a motiue sufficient, to induce you to imploy all
your indeuours to the setting forward those two Staple
Commodities of Silke, and Wine ; which brought to
their perfection, will infinitely redound to the honour,
benefit and comfort of the Colony, and of this whole
Kingdome: yet we, in discharge of our duties, doe againe
renew our often and iterated Instructions, and inuite
you cheerfully, to fall vpon these two so rich, and necessa-
ry commodities. And if you shall finde any person, ei-
ther through negligence or wilfulnesse, to omit the plan-
(a) ting

ting of Vines, and Mulbery trees, in orderly and husbandly manner, as by the Booke is prescribed, or the providing of convenient roomes for the breeding of Wormes; we desire they may by seuerer censures and punishment, be compelled thereunto. And on the contrary, that all fauour and possible assistance bee giuen to such, as yeeld willing obedience to his Highnesse Commands therein. The breach or performance whereof, as we are bound to giue a strict account, so will it also be required of you the Gouvernour and Councell especially. Herein there can be no Plea, either of difficulty or impossibility; but all the contrary appeares, by the naturall abundance of those two excellent Plants afore-named euery where in Virginia: neither will such excuses be admitted, nor any other pretences serue, whereby the businesse be at all delayed: and as we formerly sent at our great charge the French Vignerons to you, to teach you their Art; so for the same purpose we now commend this Booke vnto you, to serue as an Instructour to euery one, and send you store of them to bee dispersed ouer the whole Colony, to euery Master of a Family one. Silk-seed you shall receiue also by this Ship, sufficient to store euery man: so that there wants nothing, but industry in the Planter, suddenly to bring the making of Silke to its perfection: which either for their owne benefit (we hope) they will willingly indenour, or by a wholesome and necessary severity they must be inforced.

This particular aduice we thought necessary to giue you, lest that if it should haue come to you mingled with others, you would haue interpreted it as a common Instruction, or a businesse that was not taken so to heart, as this is by vs, and we hope will be by you in humble obedience

dience to his Sacred Maiesties Royall Instructions. The
paines and industry of the Authour, for the benefit of
the Plantations (being a member of our Company) are
sufficient arguments of his good affection to the Action,
and they both deserue your best acceptance and ours, that
others may thereby be inuited to impart their knowledge
in businesse of this and the like nature; whereby the Co-
lony may not onely bee supported for the present, but
brought to that perfection, that may redound to the glory
of God, the honour of his Maiesty, and the inestimable
benefit of his noble Kingdomes; which as they are the
true aime and end the Aduenturers and Planters haue
proposed vnto themselves; so ought they to bee still the
honorable seeds to put others also forward in this action:
we commend this businesse againe to your speciall care.
And so we commit you all, and your waighty affaires,
to the protection of the Almighty.

HENRY Southampton.

May it please the Reader to amend the faults
in Printing thus.

Pag.	line.		Amend.
17.	17.	<i>seven or eight weekes</i>	<i>sixe or seven weekes</i>
66.	20.	<i>in store of Beares</i>	<i>in store of Beuers</i>
69.	19.	<i>millions of Mulberie trees</i>	<i>millions of Mulbery seeds</i>
70.	11.	<i>to this Silkworme</i>	<i>to this Silke worke</i>
ibid.	21.	<i>of the Silkwormes breede</i>	<i>of the Silkwormes bredde</i>
ibid.	30.	<i>the Silkwormes spinning</i>	<i>the Silkwormes comming</i>
76.	4.	<i>streit rule</i>	<i>streit rules</i>
ibid.	18.	<i>onely Spaine</i>	<i>onely in Spaine</i>
82.	4.	<i>and a ingentle them</i>	<i>and engentle them</i>



TO THE RIGHT
NOBLE COMPANY
OF VIRGINIA,
health.

My Lords and others,



I Have been induced to present this small Tract unto you from the superabundant desire I have to further and aduance the good successe of that noble Plantation: This discourse is therefore touching the feeding and intertainment of your Silkewormes: it shews how Mulberry trees must bee planted, and their leaues gathered, how to sowe the seeds of Mulberry trees for him that will set vp a Seminary or Orchard of the best trees of that nature: also how to erect, set vp, and build houses for the Silkewormes: withall, this giues direction how to plant and set the Vine, how to dresse and till it, of sundry sorts and fashions. Likewise it shewes when the grapes are fit to be gathered, and how they are to make Wine. Furthermore,

thermore, how to plant and set Peach trees and Figge trees, which in hot countries are commonly set amongst Vines, in Vineyards in the open fields : Also, how to set the stones of diuers kindes of fruites, and how to dry both Rayfins, Figgas and Peaches, to keepe and preferue long. I haue a seruant of mine, who hath dwelt in *Virginia* these fixe yeeres, besides others of my friends and acquaintance, of the Countrey of *Languedock* in *France* (which now dwell in *Virginia* also, being sent thither at the great charge of the Company, to make silke and dresse Vines) all which haue certified me by their letters, which I haue receiued from thence, that the Woods in *Virginia* are full of Mulbery trees, of the tallest and broadest that euer they saw in any Countrey, and great numbers there are of sundry sizes and bignes : and namely, that they haue scene there some speciall trees, of which one alone is able to bring forth as many leaues as will feede so many Silkwormes, as shall yeeld fise pound of silke *per annum*. Also, they informe me, that there is great aboundance of Vines in *Virginia*, and many of them well loaden with Grapes : but because that young growing wood, bushes and weeds, so much choake and couer them, they cannot come to their full ripenesse: and the vermine, by reason the grapes grow in the woods, eate many of them vp before they come to maturity : moreover, they auouch that *Virginia* is a better Countrey then *Languedock*, which is one of the fruitefullest Prouinces in all *France*, by reason of the heate thereof

thereof and the richnes of the soyle, which notwithstanding, if so be *Virginia* be once well inhabited and peopled, it must needs exceed it; namely for this reason, because the Mulberry trees, and the Vines doe both grow naturally in *Virginia*, with many other good things, which come only by force and labor in the best parts of *France*: and none may doubt hereof, to wit, that the Vine being chosen of the best plants there, and well dressed but that it will assuredly bring forth very good fruite. Also, other Vine plants may be sent thither from other Countries, to try which of them will proue best: and of that which wee haue formerly said, that the Mulberry trees grow in aboundance naturally in *Virginia*, it must needs thence follow, that the Wormes will feed much better, and with lesse labour of men, then those in other Countries doe, where Mulberry trees grow onely, with maine labour and toyle, and the silke also of them will be farre better: and such quantity of silke may easily be made in *Virginia* (if there were store of hands) as in a very short time it would serue all Christendome. What an honour and wealth it would be to this Kingdome of *England*, all men may iudge.

2. *The manner how to prepare the places, wherein
Silkewormes are to be nourished.*



Ertaine, yea and many Authors haue written, that such places are neither to be too neere the earth, nor too neere the tiles; neither too low nor too high: to whom I confesse, this is good for such men as haue choyce of places; but there are many poore folkes, that are not able to get housing with all commodities and fitnes: and I haue seene by experience in the Countrey of *Languedock*, *Prouence*, and in *Seuenes*, and in the Countrey of *Auignon*, and in some part of *Italy*, certaine poore folkes which dwell out of Townes, which haue but one house vpon an earthen floore, and in it but one roome, where at one end they haue their bed, and at the other they dresse their meate, which notwithstanding nourish Silkewormes in it, in the season of the yeere, at which time they prepare and set forth a corner of the said cottage to the same effect, according to the quantity of the leaues which they haue: And oftentimes they pay for the leaues of a great Mulbery tree, fixe or eyght shillings the yeere, yea and many times the Wormes thriue better in them, then in great Chambers with other men, I meane, for the little quantity of Wormes which such poore people haue.

Moreouer I haue obserued, that the Silke-wormes doe loue and affect the ayre that comes from

from the dry sweet earth : prouided that care be had when the weather is cold, or moist, to make some fire in such roomes, either of wood or of coales, that are not of any strong smell.

3. *Of the building of houses to nourish
Silkewormes in.*

THose that will build with small charges houses in *Virginia*, wherein to feed Wormes after the manner as is practised in *Messina* in *Sicilie* (in which countrey there is some store of Mulberry trees within the Woods) it is a thing which may easily be done also in *Virginia*, because there are likewise great numbers of Mulberry trees there within the Woods, and the Countrey hot, and all things for this purpose most fitting. This to doe then, they must chuse a place in a good ayre, and neere the Mulberry trees, and there build a long house, in forme of a Bowling Alley, couered ouer; but a little higher and somewhat larger. They must couer it well, either with tiles, planks, or other things, against the heate and raine, for the preservation of the Wormes. And the sides of the walles must be well closed either with plaster, planks or other matter. In these walles, make many windowes on both the sides of the house; let the windowes be of wood, to open and shut, and to giue ayre to the Wormes, whensoever they need it; and for as much as the South winde is hurtfull to the Wormes, those windowes must

be shut carefully on that side, when the winde blowes there; these windowes may be couered with paper, which windowes may be set on and taken off the hinges when neede is. Furthermore, some must watch, that neither Rats, Mice, Birds, nor Poultry come there; for they will eate vp the Wormes. Likewise the Pisse-mires sometimes hurt them much, and therefore care must bee had, to marke the places on which side they come, and there sowe saw-dust of Oake wood, Ashes, or Lyme, or else rub the walles whereby they passe, with chalke, or with the oyle of Iuniper, or any other kinde of oyle, on the outside of the house onely: for on the inside of the house, oyle would be hurtfull to the Wormes; beware also, that the paper of the windowes bee not oyled.

4. *Touching the erecting and building vp of Hot-houses or Ovens.*



Wh men as are prouided of fit houses as aforesaid for the said Wormes, may build in them Hot-houses, as they make in such countries, wherein they nourish great numbers of Silkwormes. They must build of these Hot-houses, at both the ends of the house, if it bee great and spacious; but if the house be little, one will bee enough. And it must bee built in this forme following. First, a hole must be made in the house wall, wherein you will build your Hot-

Hot-house or Ouen, and therein build vp, as it were an Ouen, after the manner of the Countrey Ouens. The Ouens mouth must be at the outside of the house, with a little Chimney to it, and the backe of the Ouen, within the inside of the house. Then must you haue earthen pots, like Flower pots, without holes in the bottomes, and scarce so big as they, which must be made purposely, so as they may be able to abide the fire: These pots must be placed with a distant proportion of space, betweene pot and pot, and so build them in, within the vault of the said Ouen, with bricke and clay; the mouth of the said pots must stand out at the backe of the Ouen, and looke into the inside of the house, but the bottomes of the pots must stand and looke towards the fire, within the inside of the Ouen: and in this manner must the pots be incorporate within the Ouen. After this done, you may make fire in the Ouen when neede shall bee; for the pots being hot, will thereby cast a heate out, and warme all the house, and the smoke gets out at the chimney of the Ouens mouth, at the outside of the house. Item, it will be good to put into these pots, certaine branches of Rosemary, or Tyme, Roses, or other sweet sinels, for that is a meane to keepe the house in a temperate and reasonable heate, as need and occasion requireth. Besides, those sweet sinels are very agreeable and pleasing to the Wormes. These Ouens or Stoues will bee very vsfull in *Virginia*, principally in those Silke-worme-houses which shall be built amongst the Woods,

Woods, where store of Mulbery trees grow : for these places being more cold, shady, and moist then others, where the sunne comes freely : by this meanes they may heate, dry, temper, and well qualifie the ayre there as they please, and make the place thereby euery way well agreeing to the Silkwormes.

In these woody places also, you shall do well to cut downe all other trees that grow neere to the Mulbery trees, and ouer-shade them, and also to prune off the boughs of the Mulbery trees that grow too thicke, that so the Sun may come fairely to the trees and leaues, for the bettering of the food for the Silkwormes.

5. *Of the greatnesse of the Houses.*



Men may build them as great, or as little as they please, albeit the larger, still the more commodious : howsoeuer, it will be well, to make a partition in one end of the house, and to boord that corner so parted with boords, to coole the leaues in it, as soone as they are gathered, and to make a dore on the outside, to goe in thereat to lay in the leaues, and the other dore on the inside, to take out and giue meate to the Wormes. Item, it will bee conuenient to make either in the midst of the house, or against the walles, as they shall iudge the fittest, a certaine frame of wood, with boords or little Tables, one stage or story still aboue another, euery one of which

which stages of tables or shelues, must be distant from another, one foote and a halfe, or therabouts, and in euery frame, there may bee fīue or fixe stories or roomes of shelues, according to the height of the roofe of the house, all of one distance one from the other; And as touching the breadth of the said tables or shelues of these frames, they must be foure foote broad, those shall be set in the middle of the house: But such as shall bee set against the wall, must haue but three foote breadth, because they cannot serue & reach leaues to the Wormes, that shall be laid vpon them, but on the one side. It is to be noted, that the bords or shelues that are to be put in such frames, are to be of Firre, or of other wood that hath no strong and ill smell, or else let them bee made of Reeds, or best of all of Indian Mats, to serue in stead of shelues of wood: for these are the fittest of all other, because they keepe the Wormes more dry and fresh in hot weather, by reason of the wind that blowes thorow them. These Mats may haue crosse Ioyces of boord to support them, or else Cord put thorow the bored holes of the sides of the frame, as bedcords in a bedsted; but if the Tables or Stages be made of boords, then they are to be very thinne, to the end they may not receiue too much moystnesse from the Wormes. The frame must be made very firme and strong, lest if it fall, it kill all your Wormes, and you lose your labour, which hath happened to some.

Touching the length of the said Frames, they
 C may

may bee according to the length of the boords you haue: but if the boords happen to bee very long, then they must be vnderpropt with some piece of wood in the middle. Men may set vp such Frames in little houses, as well as in great houses, but lesse, according to the bignesse of the house; Also they may take away such Frames once a yeere, namely, after that the Wormes haue spun their silke, and so for that time the house may serue for some other vse: prouided alwaies, they dresse, nor take no Tobacco there, for it is exceeding contrary and mortall to the Wormes; euen the very breath of one that hath taken it, breathing vpon them, will certainly kill them. Likewise care must be had, once euery yeere when you set vp the said Frames and Tables, to wash them well, and to rub them with sweete smelling hearbes, as with Rosemary, Time, Fennell or such like.

6. *The time when Silke-wormes are to be hatched out of their seeds or egges.*

First of all, when the Spring time is come, and you see that the Mulberry trees thrust forth great buds, and their leaues begin to shew forth themselues, then must you take the Silk-wormes seede, according to the quantity of leaues, and the roome of the house that you haue to feede them in, and put the said seed within a new box, or in a cleane linnen cloth, and keepe the seede reasonable warme, either with-

in

in your pocket or otherwise. After foure or five daies, you shall visit it very often, and as soone as you see some Wormes hatched, then must you put the seed in a bigger box, if the former be too little, but let it be very cleane: and care must be had, that the said seede be no thicker in the box, then halfe an inch thick. After that, you must take a piece of cleane paper, of the roundnesse or compasse of the box, and fill it with holes, as big as the tag of a point can make, and lay that round paper ouer the seed in the box; then set Mulbery leaues, the yongest and tendrest leaues you can get, ouer the said paper, that the Wormes may passe thorow the holes, and feede on the leaues.

Also care must be had, that when you shall see the leaues cowered with little and blackish Wormes, you must draw them out of the boxe, with the whole leaues, with the poynt of a pin or such like thing, and lay them in sheetes of great and strong paper, turning vp all the edges of the said paper about an inch or more, for the better containing of the Wormes, and easier remoouing them, or in a bigger boxe, the leaues with the Wormes vpon it, close by one another: and as soone as you haue taken away both leaues and Wormes, put in new fresh leaues, the yongest and tenderest vpon the said seed, and so doe still, till all the Wormes be hatched: for sometimes it will be seuen or eyght dayes till they all can be hatched.

Then put together all such as were hatched in

two or three dayes, without mingling them with those that are bigger or lesser, and giue them fresh leaues once a day. Also care must be had, that while the Wormes come forth of the seed, to keepe it in reasonable warmth, either neere the fire or betweene two pillowes, which are for that end to be warmed often, yet in a meane, lest you spoile all with too much heate.

By this figure is shewed the order, to ranke the tables on the scaffolds, for
to lay the leaues on, to feede the wormes there.



By this figure is shewed the manner to place the rods betweene the tables for the Wormes to clime vpi and spinne their silke.



By this figure is shewed the fashion of the Engine, how to wind off the filke
from the cods, with the furnaces and cawtherns for that purpose.



By this figure is shewed the portraits of the coods, and the Butterflies
comne forth of them, to engender and lay their eggs vpon blacke
Serge, Chamblet, Tammey or such like stufes as hath been said.



7. *How to enlarge the Silkwormes, and
cleansē them from ordure as
they grow.*

WHen you perceiue the Wormes be-
gin to wax in bignesse, and there-
fore presse one another too much,
about a quarter of an houre or thereabouts, after
that you haue giuen them fresh leaues, you shall
take out the said leaues againe, together with all
the Wormes from the said paper or box, and
shall set them in a larger place, and if there re-
maine any Wormes vpon the old leaues, then
must you set fresh leaues in a smal quantity, to the
end the Wormes may gather themselues vpon
them, to be taken out as we haue said: which
when they haue done, you may cast out the old
leaues and their ordure; and this must be done
twice a weeke or thereabouts.

It is to bee noted, that in hot countries, the
Wormes doe eate but seven or eight weekes at
most, in a whole yeere, and the foure first weekes
after they bee hatched, they require but very
small attendance.

Also it is to be noted, that the Wormes, be-
fore they come to their perfection, haue foure
sicknesses, naturall to them, as wee will shew.

8. *Touching*

8. *Touching their first sicknesse.*

Eight or ten daies after that you shall see the Wormes heads growne bigge and white, it is a signe that they enter into their first sicknesse, and mewing or changing their first skin. Then shall you see them hide themselues vnder the leaues, without eating of them. Then must you giue them but a few leaues, namely, to feed these among them that be not sicke, and those onely: for you are to know, that their sicknesse comes not to them all and euerie one at once and the same time. Two or three daies after that, you shall see them come from vnder the leaues of a grayish colour, and creeping vpon the leaues that are freshly set on. Then must you shift them to another place, and cleanse them as we haue said.

Also you are to note, that vntill such time as the Wormes haue passed their third sicknesse, you are to lay vnder them, vpon the tables or shelues, leaues of broad, coorse, cleane paper, and twice a day giue them new and fresh greene leaues to feed on, laying the smooth sides of the leaues vpward, and that side of the leafe which is full of veines and strings downe-ward, for the Worme comes vp to the vpper part of the leafe alwaies to feed, and it feeds best, and with most ease, vpon the smoothest side of the leafe, being the tenderest. You must also teare the leafe in the middle, or in more pieces, that the Worme
may

may the more readily and easly creepe thorow it, to get vpon the top of it, which will be more needfull in *Virginia*, because of the broadnesse of the leaues there.

9. *Their second Sicknesse.*

Eight daies after, or thereabouts, the said Wormes being waxen whiter, and bigger by the one halfe, they begin to enter into their second sicknesse naturall to them. Then may you see them againe hidden vnder the leaues: Then are you to gouerne them as we haue said before, and as they grow bigger, to shift them from time to time, into new, cleane, fresh, and more spacious places.

10. *The third naturall sicknesse of
Silke-wormes.*

Eight or ten daies more after that, you shall see them waxe bigger yet by the one halfe, remayning vnder the leaues as afore-said; then enter they into their sicknesse, and alteration of their skin. Then must you giue them but a few leaues, as we said before, and keepe the roome where they are, reasonably warme, during their said sicknesse; for it is the most dangerous of all the rest, for there somtimes some of the Wormes grow very yellow, and yeeld a watrish matter out from them, which is a certaine signe of their death, and they are so contagious

then vnto others, that if then they be not picked from the rest, and throwne away, they will likewise infect them. Then must you change their place as afore, into a larger and more spacious, according as they increase in number and bignesse of body. Then may you take them very gingerly & softly, with all the leaues with your fingers ends, very cleane. But haue speciall care, that you haue touched no Tobacco; and if you haue taken any, beware you breathe not neere vpon them: for this and other strong fents are a pest vnto the Wormes.

After their third sicknesse, giue them fresh leaues three times a day: And you must first let the said leaues be cooled an houre or more, for that is better, before you giue them to the Silkwormes. When the leaues are too fresh, they surfeit, and feed so greedily as to burst themselues. Beware you gather the leaues not wet, that is to say, after the raine, or after the dew, but you must gather them drie: take heed you giue them not wet to the Wormes; for that will spoile them: therefore you shall doe well, if you feare a Raynie season, to gather in faire weather as many leaues as may serue you a day or two: for being kept in a coole place, not moist, as in a drie Soller or such like, and the leaues something spread abroad, and often turned that they heate not, after this sicknesse, you may set your Wormes vpon the shelues without paper, if you will.

II. *Their fourth naturall sicknesse.*

Eight or ten daies more, after that, more or lesse, the Wormes enter into their fourth sicknesse: Now are they waxen far bigger of body, then euer before; Then must you gouerne, and attend them as we haue before described.

And then you must prouide more places, according to the quantity of the Wormes you haue; And from time to time shift them into fresh and neare places, more ample and large, yet so, as they may be reasonably neere one to another; And then giue them as many leanes as they will eate, tearing them in the middle.

12. *What prouision of branches must be made,
to cause Silkwormes to spin
their silke.*

Seuene or eight daies before the Wormes be readie to spin, you must make prouision of branches of trees, of the smallest & firmest that can be gotten, as Birchin boughes, Heath or Hather, Broome, cuttings of Vines, or any flexible and bending tough branches: they must not be vsed greene, but drie, for feare the moistnesse of the greene branches hurt the Wormes; And mingle with these boughes certaine sweet hearbes, as Rosemary, Time, or Lauender, because the Silkwormes loue greatly aromati-

call sinels, but not sentes that are strong and vn-pleasant.

13. *The time when to cause Wormes to spinne;
and how you are to set and dresse
up boughes.*

TEn or twelue dayes, after the Wormes shall haue attayned to their full bignesse of body, according to their course of nature, then shall you see some of them runne vpon the greene fresh Mulbery leaues, without eating any of them. If then you perceiue them to be very bright and cleere in their belly and necke, that is a signe and token they are ready to spinne.

Then are you to prepare and set vp your boughs and branches, and set them in rancks, vpon the stor-ies of shelues or tables, vpriight standing, the bigger end resting vpon the lowest shelfe, and the small end of the said boughes, resting against the next vpper shelfe or boord to that, and spread them about, arching at large what you can, to the end the Wormes may haue more roome and scope, to make their balls or bottoms of Silke, leauing a foot and a quarter distance, betweene the said boughes one from another, at the bigger, and lower end of them. And between the two sides or arches of these said boughes, vpon the shelfe you are to set your Wormes, and giue them fresh, greene, and tender leaues, as much as they will eate. And as you shall perceiue them to be ready to make their Silke, they will be clyming vp, vpon the said boughes. And if
you

you see any of them not to get vp, but wander heere and there from the said branches, not finding them, you must take him, or them with your fingers, cleanelly, and nicely, and set it at the foot of the bough: for then, if he be ready to spin, hee will get vpon it.

At that time, you must clense them very often, because they dung much; and then you may handle them with the hand, for that reioyces them, so you haue a care not to crush or presse them. And when you shall see that there remaine but a few to spin, take the rest, and put them with others of the same forwardnesse. Let care bee had alwayes, as well of those that gather the leaues, as those that handle the Wormes, that their hands be very neat and cleane, as we haue remembred.

Likewise you must haue care, when the weather is cold, or moist, to haue some fire in the roome. If you cast a little Vineger vpon the coales, or some sweet smelling herbes, or flowers, into the pots built in the Ouens to that end, it comforts the Wormes. And as for such men as haue no such Ouens, they may make some fire in the Chimney of the roomes, or in a pan with wood-coales well kindled first.

14. When

24. When you must draw the Silke balls, bottoms, or cods, after that the Wormes haue made them.

TEN dayes after, or thereabouts, that the Silkewormes haue made their silke balls, or bottoms vpon the boughes; then are you to take away the branches with the balls, and to take the cods off from the said boughes or branches. Then also must you chuse out the very best Silke balls, to make as much seed, as you will preferue for the next yeere. There goes two hundred Silke cods, or bottoms, to make one ounce of seed: But if they beed double, that is to say, if there be found two or three Wormes in one Silke ball or bottome, as it often falleth out, we are to iudge and estimate then, that one hundred couple of Wormes will make one ounce of seed, or thereabouts. And one ounce of seed bringeth forth sixe, eight, and ten pounds of Silke by the yeere, more or lesse, according as the season is fitting. In *Valencia*, in *Granada*, and in sundry other places; they keepe ordinarily for seed, those bottoms of Silke, wherein are two or three Wormes apiece: because their Silke is neither so fine, nor so easie to bee spun, as the others. They may bee knowne by the handling of them, for they are stronger, rounder, and bigger then the rest: But sometimes it falleth out, that the Wormes cannot breake thorow their Silke bottoms; in such case, they must be clipped at the smaller end with the point of a paire of Sifers, without cutting

cutting the piece cleane off from the bottome, in which you must haue a care not to offend the Wormes : Then with a needle and a thred, must you thred them together, not thrusting the needle thorow the body of the bottome, but at one side ; onely passing the needle thorow the first coorse downe or sleaue.

Note also, that such filke bottomes as haue but one Worme, you need not to cut them. Then hang them vpon nailes, or wooden pinnes, where Vermine cannot come. And when the Wormes shall come forth and be Butterflies, you are to take them by the wings, and set them vpon certaine shelues, to the end that the male and the female may couple together. Also then must you be prouided of some stuffe, old or new, that hath no wooll vpon it (but vse no linnen or paper) and hang vp the said stuffe in some part of the house ; then take the Butterflies all coupled together as they are, by their wings, and set them vpon the said stuffe, be it Say, Piropus, the backside of old Veluet, or such like stuffe as hath no wooll on it, so hang'd vpon against the walles, as we haue said ; but in any case, set not them thereon, till they be coupled and ioyned together ; for otherwise the seed would prooue worth nothing. And if any be so poore, that they cannot get such stuffe, let them take Walnut-tree leaues, one handfull, or more, and tie them together by doozens, the backe of the leaues on the backside, and hang them at a naile, or pinne, and set the coupled Butterflies vpon them, as we haue said.

E

Note

Note that the Butterflies come not out of the Cod commonly but in the morning, about eight a clocke.

You shall know the seed by the colour thereof, the good from the bad, to wit, that of coupled Wormes which is good, becommeth blackish within eight or ten dayes after; the other remaineth yellowish, and that is worth nothing.

When you see that all the Butterflies be dead, and the seed become grayish, you shall take it vp with a knife, very gingerly, and that which remaineth vpon the leaues, you may take vp easily with your fingers. And if by chance some seed should be laid vpon paper or linnen, it cleaueth so fast, that you cannot get it off, without spoyling it; in such case you must keepe it, paper and all, to the next yeere; and in the due season, the Wormes will come forth thereof of themselves. But the other seed gathered from the stuffe or leaues aforesaid, you must put in a boxe, very cleane, the sides close pasted with paper, that no aire nor dust get in, and keepe it in a chest, in a dry temperate place, till the next yeere: but take heed you keepe it neither in too cold, nor in too warme a place; for then the heate would hatch the Wormes, though it were in Winter; and then being no leaues to feed them, they starue and dyc, and so all your labour is lost.

25. *How you may discerne the male Worme, from the female, the silke bottomes of the males, and females, and also the male Butterfly, from the female.*

NOW to know the male Worme from the female, (which cannot be well discerned till the Wormes bee growne great) you shall distinguish them by their heads, because the male Worme hath his head more wrinkled, hauing eyes, as a man would thinke: whereas the female hath her head round, with small appearance of eyes. As for the bottomes, you may know the male, by the forme of his silke bottom: for the male maketh his bottomes lesser, and very sharpe at one end, and but halfe so sharp at the other end. Whereas the silke bottomes of the females, are bigger, and softer, round at one end, and halfe poynted at the other.

As concerning the Butterflies, the male is lesser of body then the female, and stirs the wings oftener then the female, and more strongly.

26. *How you must manage and handle the silke bottomes, to draw their silke out of them, before the Wormes turne to be Butterflies.*

AS soone as you haue taken the bottomes of silke from the branches abouenamed, before they turne to bee Butterflies, it is best to spinne the silke from off the bottomes, because

cause after the bottomes haue bin once pearced, they cannot yeeld so fine filke, but onely a coorse filke or sleaue. And he that shall not be able to get his filke to be spunne, before the bottome may be pierced, which will be about a fortnight, or three weekes, after the Wormes haue spun, then aforehand you may kill the Wormes thus with the heate of the Sunne.

To this end then, you must spread the filke bottomes in the Sun, at noone-day, when it is in the greatest heate, vpon planks, or such like, for the space of one houre, turning them often. After that, gather them all into a heape, in a linnen cloth, and therewith couer them, to smother the Wormes within their bottomes, and continue in so doing two or three dayes. And in case the Sun should bee wanting in light and heate, to kill the Wormes, then after you haue drawn your bread from out the Ouen, or else hauing heated it, to the same measure and proportion of heate, all the embers of the fire first taken out, you may put the bottomes into the Ouen, vpon wooden boords, or some such like thing, and stirre them often, as wee haue already said: But remember that you leaue not the bottoms aboue an houre in the Ouen, lest the filke burne, or being too much dryed vp, become vnfit to be spunne afterwards. Beware also the Ouen be not too hot. And if the Wormes be not dead at the first time, put them in againe till they bee dead. After that, you must keepe the filke bottomes in a place where they may not be pressed together too hard, and where

Vermine

Vermine cannot come. And so you may keepe them till you haue time conuenient to spinne the filke. Yet if you can spinne the filke before you kill the Wormes, the filke will prooue much better, and more easie to be spunne.

There is another way, and better, to kill the Wormes within their bottomes, for such as can doe it; and this they practise at *Messina*. They haue furnaces, and great Cauldrons or Coppers, such as Diers vse, those they fill halfe full with water; then they make a fire in the furnace, to heate the water. Then they lay a round lid or couer of planke or boord within the Cauldron or Copper, but so borne vp by the Copper, that it touch not the water, though it lye neere to it, within three or foure fingers bredth of it, which round lid or couer must be bored as full of holes as a Siue: vpon this couer they lay a thin Carpet of Darnix, or the like, and vpon the Carpet, the filke bottomes are laid, which must be stirred often, and the Cauldron or Copper must bee couered aboue the lid, that the heate may smother the Wormes within the bottomes. When the Wormes be dead, take vp the bottomes, and lay them in some roome where there is ayre, to draw out and dry their moystnesse. By this meanes the filke loseth not the colour, and is as good, and as easie to be spunne, as if it had been spun assoone as the Wormes had made it.

17. *The manner how to prepare the silke bottomes that be pierced, which were kept for seed, how to make of them course silke, and of the best and finest of that kind.*

AS concerning such bottomes of silke as are pierced, they cannot serue to make fine silke, but coorse, yet of that you shall make the best of that sort, namely, when they be rightly mannaged in this manner :

Take the said pierced bottomes, and wash them in fresh water, hauing by you a Cauldron with cleere water in it, which being set on the fire, and ready to boyle, put sope in it, and when that it boyleth, and the sope is molten, put the silke bottomes in it, and let them boyle one quarter of an houre, or thereabouts, and stirre them. After that, take them out, and wash them in clean water, and dry them. When they are dried, then must you beate them with a round staffe of a good bignesse, vpon a stone, or other thing, and then they will become white, and smooth as wooll : After that, women may spin them, in this manner as followeth :

First of all, they must pull them with their fingers one after another, and open them very wide as they doe wooll when they spin it. Then must they put the silke vpon the Distaffe, and spin it as small and fine as they can, or will. Others doe card it with cards made for the purpose, but then it cannot be spunne so euen.

As

As touching the refuse or drosse, that must be carded, for to spin it. He that will haue his said coorse silke yellow, he must put the pierced bot- tomes in fresh water foure or fīue dayes, and change the water euery day, and presse the bot- tomes with his hands; after that, hee must dry them; and so they may be spunne, as though they had been sodden; and this, without losing their colour.

18. *How you are to gather the Mulbery leaues, so as the trees may best thrīue thereby, and the leaues be the better.*

IT is good for him that hath Mulbery trees, that hee gather his leaues but once in two yeeres; viz. if he haue 500. trees, to gather the leaues of 250. one yeere, keeping the other halfe for the next yeere; neuerthelesse, such as cannot spare the leaues, may gather them in this manner that followeth:

Of all the principall boughes and branches of the trees, you are to gather leafe after leafe, lea- uing the stalkes behind, and the ends or tips of the branches together with the younger leaues, to the end that the said boughes or branches may grow so much the better. And as for the little sprigs, that grow within the trees, if they bee in too great number, and thicke or ranke, you may plucke them off with their leaues. As touching young Mulbery trees, you are to gather the leaues onely of the principall branches, as wee haue

haue said. Care must be had to keepe the leaues of the older trees, till the Wormes haue passed their third and fourth sicknesse; for then it is, that they beget their silke; and the leaues of such old Trees beget more silke then the yong ones. And the Wormes eate more leaues in three or foure dayes after they are growne to their bignesse, then euer they did in all their time before.

Now, forasmuch as it sometimes falleth out in the Spring time, that it raines two or three dayes together, so as the leaues cannot dry by the weather; In such a case, while the Wormes are yet little, you may cut off some branches of the Mulberry Trees, and hang them vp in houses, where the ayre may come to dry them, and as soone as the leaues be dry, you must plucke them; for otherwise the branches would draw the sappe and iuyce of the leaues to them. Otherwise, if you gather the leaues wet, you may dry them, by spreading them vpon a cleane linnen cloth, stirring them often, and wiping them with another cleane linnen cloth, till they be dry.

19. *Touching the Husbanding of Mulberry Trees.*

IT is to be noted, that Mulberry trees are to be husbanded, opened, digged, and dunged at the foote, as the Oliue tree, namely, in such places where they grow, with mayne labour of men. But in such places where they grow naturally, where the nature of the soyle is such, that it bringeth them
 forth

soorth without so much handy labour, there their fruit is better. And those men that will haue some trees planted vpon their land, they are to make good choice of them in Summer, and marke them so, as they may know them in Winter, to remooue them in the due season fit to plant them in. And to chuse the very best of them, you are to cull out such as haue round leaues, and not forked, for both the fruit, and the leaues of them are better then those of the other Trees. These fise and twenty yeeres I haue seene diuers Countreys, where they began (and afterwards found it very profitable) to plant Mulbery trees about their grounds, in stead of hedges, where they grow so speedily, that the second yeere they may begin to gather some leaues, during the time that the Wormes are small: forasmuch as the leaues of little trees grow sooner, then they of big Trees. To plant Mulbery trees in forme of a thicke hedge, for to haue the first yong leaues, for the Wormes new hatched, you must make a ditch of a foote and a halfe deepe, and as broad, and therein plant your yong trees, then fill the ditch with earth almost full: then cut off the branches of the trees that you haue set; for that will make them grow the better; and place them two foot neere one another. And whosoever will haue a double hedge of them, let him make another ditch three or foure foote neere that, and plant it as in the other: Their Wood, when they are plashed, is as good to burne, as any other; and their Ashes better.

F

20. How

20. *How to prepare the seed of Mulberry trees
to make a Nurcery.*

WHosoever will make a Nurcery of the seed of Mulberry trees, when the fruit is ripe, let him obserue that Tree, that beares the fairest and roundest leafe; and of that tree let him gather so many Mulberies, as will fit him for his seed, which must be thus vsed.

First, wash the Mulberies in two or three waters, pressing them with your hands, and then take vp the seed that remaineth in the bottome of the water. After that, dry your seed in the house, and keepe it till the moneth of March next coming. Such men as will gaine one yeere, sow it assoone as they haue gathered it, without drying it; And other men sow the Mulberies whole as they are, in that manner that we will say.

21. *In what manner you are to sow the seed of
Mulberry trees for a Nurcery.*

First, you must dig, husband, and make beds of fat earth, the mold being made small, and wel dunged with good old dung, thorowly rotten, and you must make your beds foure foot, or foure and a halfe broad: And within the said beds, you must make foure or fife straight lines of rayes or furrowes, all halfe a foot equally distant one from another, and euery furrow must bee two inches deepe, and foure broad; And betweene euery bed you must leaue little Allies, or spaces halfe a foot broad,

broad, which will serue you to goe to weed or water them, without treading vpon them. Then are you to sowe the seed in the said furrowes, and couer it an inch deepe or thereabout, of the finest mould.

The first yeere you must take care to water it often, if the weather bee dry, and the earth must bee kept cleane from weeds. A yeere after that, you may pull vp, and transplant your Mulbery trees into another ground more at large, viz. two foot one from the other, as ordinarily other trees are disposed of: and there let them grow till they bee as bigge as a mans arme at his wrest, or thereabouts. And then you may transplant them, into the place, or ground, where you will haue them continue for euer: Leaving a distance the one from the other, of fifteene or sixteene foote, namely, so as the boughes of one tree grow not within another. Care must bee had, that in hot Countreys these trees be set deeper into the earth, then in a cold soyle, for feare of burning the Rootes.

F 2

I. Ano.

1. *Another Discourse how to plant the Vine, how to dresse and husband it sundry mayes, how to chuse the ground and the seate to that effect.*



First, such as will plant Vines, they are to chuse a soyle proper and convenient for that vse. If you plant it in a low ground, and moyst, there the Vine growes well, and beares store of fruit, but the Grapes neuer ripen well, and therefore the wine is not good, nor can it be kept long. You must then make choice of a dry soyle, whose aspect is toward the full South Sunne, and couered or sheltered from the Noth wind, if it bee possible. And if you meete with rising ground, as the sides of hills hanging downe, they are most proper, and though they bee full of little stones, and grauell, they are also the better for them, and not the worse; the wine of such places being better able to be kept long, and fitter also to be carried farre.

First, you must open the earth, and dig it one foot and a halfe deepe, or thereabouts. And after you haue digged as much earth as you haue plants to set, you must make ditches in the said ground looking towards the full South, one foot and a halfe deepe, and as broad, and of the length that the place is of.

The ditches must bee three or foure foot distant one from another: so after you haue selected your plants,

plants, whether with roots, or without, as of slips or cuttings (for the Vine growes aswell without roor, as with, and that which is set without roor, is of the longer indurance and lasting; though true it is, that the first yere it will not grow so much as that which hath rootes) These plants I say, must bee planted three or foure foot one from another, in as much distance as the ditches are one from another. And the Vine plants must be planted in a straight line, in forme of a Checker, quadrangle-wise.

Heere obserue, that if the plants bee without rootes, you must cause them to soke in fresh water, twelue or fiftene dayes ere you plant them, putting the big end of the plant in the water a foot deepe. But if they haue roots, you must cut them off (vnlesse they were pluckt vp one day or two at most before you plant them) and put them in water two or three dayes. He that shall plant the Vine, must haue one to helpe him, who shall lay the Vine in the ditch, all along the said ditch, of what distance he will, one from the other. And in planting, he shall tread in the ditch, letting some of the digged earth fall into the place where hee is to plant or set his Vine; then shall hee take his plant, and bow it one foot in the earth of the ditch, or thereabouts, according to the length of the plant, putting the biggest end within the ditch, towards the plumpe, South of the Sunne-rising, and with the hand, raising vp the point, end, or top of it, setting his foot on the roor, and casting some mould on it, halfe a foot deepe or more, and treading on it, that it may bee firme. And hee must doe so, all along the

ditch, vsing a line, to plant them with an equall distance, doing the like in, and thorow all the ditches.

When your Vine shall bee thus planted, then let fall more mould within the ditch all along, yet you must not fill it vp the first yeere. Also bee sure that you make that earth that is betweene two ditches, slant on both sides. And husbanding the said Vine from time to time, the earth of it selfe will fall into the ditches, and fill them. The Vine is no sooner planted, but it must bee cut, not leauing vpon each branch aboue three knobs or knots, which wee call eyes: But the old Vine that is planted about houses, to make long Vines, that must not bee cut as yet; for you must leaue it all the old wood or branches, and one part of the last yeeres branches; both must bee cut the first yeere, in the beginning of the new Moone: The second yeere it must bee cut at the full Moone, and then leaue it but one branch, the lowest and strongest, leauing vpon the said branch, but foure knobs or knots, or thereabouts, according as the Vine shall bee waxed.

Also you are to note, that in cutting the Vine, you must haue a good knife, or rather a sharpe hooke, as in *France*, in such a forme as the Shoemakers knife; wherewith you must cut the branches very euen, and very neere the old wood, to the end that the Vine growing, may couer the cut.

When you see in the moneth of May or Iune, that there grow vpon your Vine many sprigs arising

sing from the foote of the old Wood, you must plucke them off with your hand, and let none grow, but such as grow vpon the last yeeres branches, vnles the Vine be very strong; in such case you may leaue her some of such twigs to multiply her.

Those that will haue their Vines grow without stakes or props, as they doe in *Languedock* and *Prouence*, such you are to cut so short euery yeere, that you leaue them but two or three knobs, to the end the Vine may grow big and be strong enough at the foote.

The third yeere, the Vine begins to pay and recompence or reward her Master for his labors; then must you cut her a little longer, and leaue her more branches, (*viz.*) two or three in euery one, and euer the lowest. Obserue also, that if the Vine breed much Wood, then you must cut it when the Moone wayneth; but if it bring forth little Wood or branches, cut it in the first quarter of the Moone, toward the full thereof: all must be cut in December, Ianuary, and February.

2. *Another manner of planting the Vine, namely, such as haue no rootes.*

First of all you must digge and prepare the earth (as we haue said) and make it very euen: then take a line and lay it along the earth where you will plant, looking toward the South Sunne, as we haue said. You must haue a Pinne or Dibble of Iron or of Wood, to make a hole.

hole therewith in the earth, one foot and a quarter deepe; then put the biggest end of your Vine-plant within the hole of the earth so made; and if you haue dung very rotten, put of it one handfull in the said hole; then treade it with your foote, and with the Pinne or Dibble bore the earth round about the plant to fasten it, that the earth may thereby ioyne close, and be combined with it; then cut it, as we haue said, and keepe it very neate and cleane from weeds all the yeere.

3. *Another fashion of dressing the Vine, after the manner of Italy, and of Piedmont or Sauoy.*

THe greatest part of the Vines of those Countries are planted in the open fields, and grow vp vpon trees, that are planted there to that end; they plant one or two Vines at one Tree, namely, of the longest Vines they can get, to the end they may grow, and bee the sooner vpon the top of each tree; and they cut the branches of the Trees off, that bee too long, that the Trees may grow round, as much as may be.

Touching the Vine, it must be cut euery yeere, as we said already, yet they must leaue this many more branches then are vsually left vpon other Vines. And where there are no Trees planted, there cut off some long and big boughes of trees, or get euen whole Trees, of the bignes of a mans thigh or thereabouts, leauing onely vpon them
the

the bigger end of the boughes, and plant them in the earth, to support and proppe vp the Vine.

Obserue also, that they plant the said Trees or boughes ten or twelue foote distance one from another or thereabouts. You must bee carefull when they be rotten, to set others in their rooms. Also they may till and sowe that Land with Corne, not endammaging the Vine, which is husbanded while they till the said Land.

And for as much as in *Virginia* there are found old Vines in the lands, that the Inhabitants doe cleere for their vse, they might spare the said Vines, and plant by them such Trees or boughes, as we said, and tye the Vines vpon them, to prop them vp, as is said; for they would bring forth much fruite the very first yeere, which would be as much time gayned, and labour spared. Withall, they might also plant of the longest Vines they could finde, neere to the Trees, to cause them grow vpon them, both neere the houses and wayes, where they would haue Trees to growe; and these Vines will beare great store of Grapes, though not to make so good Wine, as is made of the low Vine, yet good enough to be drunke at meate.

I haue seene in the Low *Genanden* in *Languedock*, a Tree bearing a Vine, which hath yeilded in one yeere as many Grapes, as made halfe a Tunne of Wine.

G

4. Another

4. *Another forme of dressing the Vine, as they doe in Viuairetz and in Auuergne.*

They plant it as we haue said, and they cut it a little longer then they doe in *Languedock*, after that, they plant stakes of wood, of fve or sixe foote long, and binde three or foure of them together by their vpper ends, in forme of a round Tent; this they doe thus, because the Vine there is stronger then in other places of *France*, and they tye the Vine vpon them. But in winter, when they will cut the Vine, and husband it, they take away the stakes: and towards the end of March, they set them vp againe, as they doe in *France*, where they sticke but one stake vpright at one Vine, whereto they binde it.

5. *Another way to dresse the Vine, after the manner of the Countrey of Seuenes.*

THere they plant the Vine as followeth. First, hauing prepared the soyle, they make ditches, as we haue told you before; then plant they the Vine two foote, one from the other: and the first yeere they cut it very short, leauing but three knobs or knots out of the earth. The second yeere they cut it at the first quarter of the Moone, and leaue to euery one but one branch, as long as they can leaue it, and set a stake at euery one of the Vines. Two yeeres after, they provide them certaine wooden forkes, of the

the bignes of a mans legge, and wooden poles as big as his arme, also smaller poles: then they sticke the forkes in the earth, from sixe to sixe foote distance, all along the ditch where the Vine is planted, and as much in height, or lesse if they thinke it fit, and so they doe alike in each ditch: then they lay the bigger poles from one forke to another, tying them together with Osier or Willow; and then they rye the lesser poles, being sixe or seuen foote length, athwart ouer the bigger poles, binding them together with Osier, in distance one from another of one foote and a halfe, much in the forme of the nets that men lay to take Deere to transport from one Parke into another.

They cut the Vine the second yeere, as long as they can leaue it, and they leaue it but one branch, to wit, the strongest, to the end the Vine may mount vp the sooner vpon the said frame of Poles, which we now described, and they binde it thereupon. Now when the Vine is vpon it, which is the yeere following, then must you leaue more branches to the said Vine, when you cut it, according as you shall see that her stocke is strong and able enough to feede her. And you must leaue in euery branch, fise or sixe knots or eyes, and euery yeere binde vp the ends of all the new branches which are left vncut; vpon the pole, frame with Osier, or with greene Rushes, or what you can get. They plant such Vines vpon the arable Lands about houses, and vpon or ouer the high wayes, terming them Treillies or plat-

ted high Vines, which they plant as followeth. First, they digge a ditch in the place, where they meane to set the Vine, in that sort we described afore: And they plant the Vine within the ditch, as also wee haue shewed: then prouide they wooden forkes, and bigger and smaller poles, as is afore set downe.

Such forkes as are set in the ditch, must be but two or three foote high: plant a row of them, sixe or seuen foote from the said ditch or thereabouts, right against the South, and lay on them great and small poles, and tye them as aforesaid.

Such Vines as are planted ouer the high waies too, and neere houses, there the forkes must bee longer, to wit, seuen or eyght foote high, and the poles so much the stronger, to bee able to beare the burden of the Vines, and hauing a respect to the breadth of the said wayes. Carts and horsemen passe vnder them in those countries, without hurt to the Vines, or molestation to the passengers. Such Vines, are to be planted, at both the sides of such waies, and tyed vp and dressed as is said.

6. How to husband the Vine, and in what season of the yeere.

THe Vine must be husbanded three times a yeere, to wit, in March for the first time, the second time in May, the third in August. In March you are to digge it deepe enough, (viz.) three quarters of a foote depth or thereabouts;

abouts; and at the other times halfe a foote deep or thereupon: And in plowing it, you must haue care to plucke off the ends that grow vpon the old wood of the said Vines, for they spoyle the Vine.

7. *How you are to chuse the Vine-plants, for to plant of the best.*

Vhen the Grapes be ripe, then consider what plants be best, and which beare most branches. Then marke the same plants so, as you may know them againe in Winter, to transplant of them elswhere. And also if there bee any Vines that thriue not well, plucke them vp, and set in their roome some of those fruitfull ones: and if there bee any Vine which hath a branch long enough, cut it not from the Vine, but lay it in the earth a foote and a halfe deepe, or thereabouts, leauing out of the earth the small end thereof, with three or foure knots vpon it, and cut off the rest. It will bring forth fruite the same yeere. But you must lay in the earth so but one branch of a Vine in one yeere, for feare you spoyle the Vine by too much sucking it. You are to cut the same branch frō the old Vine, the next yeere after that, to the end it draw not the sappe and iuyce away too much from the old one; and by that time the said branch will haue taken roote enough, able to feede it selfe. And thus you may store and furnish your Vineyard in a small time with very good plants.

8. *How to make Wine, and how to know when the
Grapes are fully ripe.*

When you shall see the Grapes very blacke, and that there are no grayish graines among them, and that the stalke of the bratch is become reddish, and the white Grapes draw to be of a yellowish colour, and the graynes tender; these be tokens that they are ripe, which thing you shall yet better perceiue in tasting them; If they be sweete in taste, and the liquor be gluish betweene your fingers, then is it time to gather them. Yet in euery place they cannot ripen alike, so wel as in some, though it be vnder the same Climate.

In low places, and moist wet grounds, they are neuer so good, nor so soone ripe, as they are in the dry grounds, and the hilly or sides of hills, and as in the stony and grauelly grounds; and that is the cause, why they are not to be gathered so soone in moist grounds.

Note also, when you gather your Grapes, that you may haue the Wine to be good and fit to keepe long; doe it in dry weather, not in rayny, for that spoyles the Wine, and takes away his strength, and hurteth the Vine.

When you gather your Grapes, chuse the ripest, and carry them home; but afore-hand provide a Vat, or such a Tub as Brewers vse in Brewing. And such as haue no great store of Grapes, may vse lesser vessels, as barreles or halfe Hog-heads,

- heads, to let the Wine purge it selfe in. The Grapes must be trodden in the vessell, with bare legs and feet; first of all in a lesser vessell or tub, and then after that, remoue the trodden Grapes, into a bigger Vat, by degrees as they are trodden, huske and all together: And you may fill the Vat or Tub, within halfe a foot of the brim therof. Such vessells must stand vpon the one end, vpon their bottome, but all open vpward: they must be well bound; for otherwise the force of the new Wine will breake them all in pieces.

Whosoever will haue his Wine all Claret, let him gather all his Grapes all at once, the white and the blacke, and put them all together in the vessell, and let them worke together.

Before you put them into the Vat or Tub, make a little bundle of short Vine-branches; then make a hole in the low end of the Vat or Tub in the forepart, to draw the Wine out, when it is purged: put the said bundle of Vine-branches within the said vessell, iust before the tap-hole, and lay a cleane stone or Bricke vpon it, to keepe it from heauing vp with the Wine; this will hinder, when you draw the Wine, that the skins or huskes of the Grapes come not out at the tap-hole with it. You must let the Wine worke, and purge it selfe, fve or sixe dayes, or more, if you will haue it looke very red. After that, draw it below, and put it in Barrells or Hogheads. By this time, you hauing gathered your greener Grapes, after you haue trodden the same, as we haue said, put them into the Vat or Tub,

Tub, with the huskes or skinnies of the former pressed Grapes, out of which you haue drawne the Wine, and mingle them well together, either with the foot or with a staffe, and let the Wine worke together as before, and it will bee a meane small Wine for the houghhold: After, when it hath purged it selfe seuen or eight dayes, draw it out and barrell it. Beware you stop not the large vpper hole of the vessell, vntill the Wine hath lost and spent all his great heate.

There are some, who after this, presse the huskes in the presse, drawing out all that can come thereout, putting that liquor into a Barrell by it selfe. Others goe further, and put water to the huskes and latter Wine, at diuers times, not all at once, but by little and little, putting one Tenth part of water, in proportion of the quantity of the Wine, which they haue so drawne, and they let it worke and purge it selfe in the Vat, or lesser vessell, fise or sixe dayes, and then draw it and barrell it: This will be prettie smal Wine for the seruants or houghhold. And whosoeuer will make Wine meereley white, let him gather all his white Grapes by themselves, and let the Wine worke and purge it selfe in the Vat but two or three dayes; for if you let it stand longer, the colour will be yellow; this is the manner practised in *Languedoc*, *Prouence*, and elsewhere: but in *Poitou* and in some other parts of *France*, they doe otherwise, that it may be the whiter.

After it hath been trodden, draw out the Wine, and put it in Barrells, and there let it purge, without his huskes or skinnies. You must be carefull to fill

vp the Barrels euery day, according as it diminisheth with working, otherwise the Lees and other corruptions will goe downe into the Barrels, and when hot weather commeth, will spoile the Wine. You may do so with the Claret, when you will not haue it too red, but cleere, and namely in hot countries.

9. *Observations touching the wild Vine, that groweth in Virginia, and how to make Wine of the same.*

I Haue been informed by such as haue bin in *Virginia*, that there grow infinite number of wilde Vines there, and of seuerall sorts; some climbe vpto the top of trees in the woods, and they bring forth great quantities of small blacke Grapes, which are the plainer to be seene, when the leaues are falne off from the trees. Another sort of Grapes there is, that runne vpon the ground, almost as big as a Damson, very sweet, and maketh deepe red Wine, which they call a Fox-Grape. A third sort there is, which is a white Grape, but that is but rare, which are all deuoured by the birds and beasts.

Now if such men as dwell there, would take the paines to gather some of them, when they be ripe, and tread them as aforesaid, and make the Wine worke with water, putting it in Vats or Tubs, as we said, it would purge it selfe as well as good Wine doth; and if the Grapes bee too hard, they may boyle them with some water;

H

and

and if the Cauldron be too little to boyle them all together, boyle them one after another, till all be boyled, and then put them all into the Vat or Tub, to wit, the Wine, the water, and the huskes of the Grapes, and then let them worke thus together fūe or sixe dayes, or else so long till you thinke it fit and good to bee drunke. After that, you may draw it, and barrell it, as wee haue said, and vse it when you need. I haue oftentimes seen such Wine made reasonable good for the household. And by this meanes euery man may presently haue Wine in *Virginia* to drinke.

1. How to plant the Figge tree, and the nature of the same.



He Figge tree is a tree that groweth speedily, and the second yeere be-
ginneth to beare fruit, and is of that nature, that during a moneth or fūe weekes, in that season when Grapes are ripe and good to eate, you may gather ripe Figs of it euery day. The Fig tree heerein is like the Vine, that it may be planted without rootes, of a branch, albeit such as haue roots, bring forth sooner: And being either plucked vp, or cut off a long time before, you must put them in water (as we haue said of the Vine) and plant them in the like manner. And in hot Countreies, they plant them ordinarily in the open Vineyards, for it loues naturally to grow with the Vine, as ha-
uing

- uing affinity together ; for their fruit grow, and are ripe at one time. When you plant the Figge tree without root, you must lay the branch within the earth, as we haue said of the Vine.

2. *How to plant Peach trees, and the nature of them.*

THe Peach trees of euery kinde, are trees of no long continuance, and ordinarily are planted in the open Vineyards, as the Figge trees, without hurt to them; and their fruit ripens in one season.

Many being in their Vineyards, when they gather and eate a Peach that pleases them well in their taste, doe forthwith plant the stone thereof in the earth, in that place where they will haue a Peach tree grow the next yeere, and there the same groweth without any further labour. The like may be done of all sorts of Peaches, yea euen with Apricots : and those that will not plant them in their Vineyard, may plant them first in their Garden, and transplant them afterwards where they please, and they will bring forth the like fruit, as the tree of which the stone was.

There are places in *France*, as at *Paris*, where they graft them vpon Plum-trees, or Almond-trees, which are more lasting, though not fit to be planted in Vineyards, because the Plum-tree breeds too many roots and suckers, which spoyle the Vine.

3. *How to plant Quince-trees.*

AS for Quince-trees, they may be planted of a bough thereof, without roote, as Figge trees: though it is better to plant them with rootes, when such may be had. They like well to be planted in moyst ground, yet they will grow euery where. Also you may graft them, one vpon the other, thereby to get the better fruite. Likewise you may sowe his seede, to wit, when his fruite is ripe, then are you to take out the kernels, and sow them, as you sowe the seeds, and kernels of Apples and Peares, which commonly is done in February and March.

4. *Of the Oliue tree, and the nature thereof.*

THe Oliue tree also is a great louer of the Vine, commonly they plant it in March, Aprill and May, ordinarily they plant no Nurceries of them, because they are a long time in growing.

There growes at the roote of the olde trees, sprigs, or suckers, which being growne bigge, they vse to cut them off, together with as great a piece of the stocke of the olde tree, as is a mans two fists or thereabouts, and this is without hurting the tree, and so they plant the said sprigges or suckers with their adiunct aforesaid, putting that great piece in the earth, which serues it in
stead

stead of a roote, then must we cut off his head or toppe vppward; as commonly wee doe to other trees.

Also you may sowe some of his fruite, together with the stone thereof, being very ripe, as about Christ-tide, when they are blackish, and this without drying them. You must husband it at the roote, as the Vine, twice in a yeere, and fatten the earth with good dung, if need require. In many places they sowe corne or other things vnder the Oliue trees, without hurt to them.

5. *Of the Pomegranate tree, and of his nature.*

THE Pomegranate tree is euer little, of the bignesse and forme of a white Thorne : In hot countries they growe neere the High-wayes, and in Woods, especially in stony ground. They make few Nurceries of them, because they cast many sprigs at the foote, whereof so many may bee pluckt off and planted where they will, and as many as they please.

Note, that there are some sweet, and some bitter; the bitter are not eaten, but are good for other vses, as namely, for Curriers to giue a good glosse to their Spanish Leather Skinnies. Being once sowne or planted in any place, there they grow of themselues, and hee that will sowe of them, when he eates of the best of them, he may put the seede, or kernell of them presently in the earth.

6. *The manner of sowing the seedes or kernels of sundry kindes of fruites, for to haue trees of them: and how to preferue the seedes, vntill the time be fit to sowe them.*

FOr the seede of the Vine, it may bee well sowne, and it will grow as other seeds doe: but because it is a long time a growing, they vse to sowe very little of it. Yet whosoever would be curious to trie conclusions, may sow of it, as they sowe other seeds. For to draw out and get the seedes of them, the Grapes being very ripe, you must gather them and wring them betweene your hands, and so take out the seeds or kernels, and then sowe the same presently, or else dry them in the shaddow, not in the Sunne, and keepe them till February or March next comming, and then soke them in fresh water two or three dayes before you sowe them.

7. For the seed of the Fig tree, draw it also out of his Figs, being fresh, and sowe it, as that of the Mulbery tree, whereof wee haue treated already.

8. The stones of Peaches and Apricots, are the seed of those trees, which thriue best, when they are planted as soone as they are out of their fruit, without drying them. And those that will keepe them till March next, must dry them in the shaddow, not in the Sun. And before you plant them, put them foure or fife dayes in water or wine, then put them foure inches deepe in the earth. Otherwise, without drying

- drying them, you may keepe them in an earthen pot, with earth in it.

9. The Cherry stone is to be mannaged as the Peach and Apricot, as wee sayd before. The fruit that comes of them, will prooue as the Cherries were, howbeit, not altogether so big as the former were.

10. Wall-nuts must also be planted greene, and fresh, and with all the vpper Rinde, and take heed Rats and Mice come not at them to eate them, for they are very liquorish of them.

Also, you may keepe them dry, as we said heere- tofore of other things, but they profit not so well. The Tree that shall come thereof, being of the said nature, will produce the like fruit.

11. The Almond is to be husbanded and plan- red as the Peach and Apricot.

12. The stones of Plums are to bee vsed and planted as the Almond; but the Tree that shal come of them, will not bee so good, and that is the reason why they must be grafted.

13. The Chest-nut is to be planted greene and fresh, else it will neuer prosper, if you let it be dried. You must put them in the earth, three or foure inches deepe; And to keepe them, you must put them in fresh water three or foure dayes, then wipe off the water from them, and keepe them in a pot with earth in it, vntill the Spring come, to plant them. The Trees that will come of them, will not bring forth so good fruit, as the Chest-nut was, and there- fore the best way is to graft them.

14. The seeds of Lemons and Oranges, ordi- narily

narily are sowne, as soone as they are taken out of their fruit. They prepare the soyle towards the South, well digged and dunded, and plant them the small end vpward, two inches deep in the earth. Also they graft them ordinarily, to get the better and goodlier fruit of them.

15. For the seeds of Apples and Peares, the fruit being very ripe, you are then to take out the seed, and dry them in the shade, and you may keepe them till February following or March, to sow them. Then must you haue prepared for them good ground, and you must make in it small rayes or furrowes, of two or three inches in breadth, and of like depth, each furrow being three quarters of a foot distant one from the other, and you must sow the seed within the said furrowes, couering them with earth. It is very good to sow them, as soone as they are taken out of their fruit; for they come forth of the earth the sooner: And it is needful to graft them, because the fruit that proceedeth of them otherwise, is not so good. It is also good, that all the seeds and stones here beforenamed, be planted and sowne at the first quarter of the Moone.

16. *How to dry Grapes, to keepe them.*

When the Grapes be very ripe, then are you to choose them in the Vineyard, of the biggest and best, and namely, white ones. After you haue chosen and gathered as many as you will haue, you must burne a certaine quantity of Vine-cuttings, not mingling therewith any

any other kind of Wood, and then gather the ashes thereof (but the best is, that they bee all of white Vine branches:) after that, put faire water and those ashes in a Cawldron vpon the fire, and see the them together, till you haue made a cleere liquor; then taking away all the ashes, put the liquor into a cleane Cawldron againe, and set it ouer the fire, and being ready to see the, then must yee take rods of wood, such as Chandlers vse, whereupon they set and make their Candles; vpon which rods you must tye the bunches all along, one bunch of Grapes on one side the Rod, and on the other side another bunch of Grapes; tye them with thred by their stalkes to hang them on; which done, then diue them in the liquour, as the Chandler puts his Candles in the molten Tallow, and that sundry times, as foure or fve times: thus, hauing diued one rod of Raysins, hang it by to dry; then take another, and wet it in the same manner, and set it by, and doe so of all the rest: then hang them vp in the Sun, or else spread them vpon Hurdles or Lattices of Rods, or such like, vntill they bee almost dry: then barrell them, pressing them very flat in the said Barrells. Others dry them, without this steeping them, euen as they come from the Vine.

17. *How to dry Figs.*

First, gather them very ripe; And hauing made ready Hurdles or Lattices of Reeds, or of Osier, ioyned together, as Osier Lattices vse to be, with lights or clifts betweene Osier and Osier,

to the end that the ayre passing thorow the rifts, & void spaces of them, may helpe the Sun to dry them vp, when they are spred vpon the said Lattice Tables; and take heed, that neither the raine, nor the dew fall vpon them. Also you may drie them in this manner: First take a big Reede or Cane, of two or three foote long, and bore little holes all the length of it, thorow which holes you are to put little stickes very sharpe, of two foote long; then thred the figs vpon the little stickes, till they be very full of them; then hang the Cane in the Sun; and when they be dry, barrell them, pressing them very hard in the Barrell, as we said of Grapes.

18. *How to drie Peaches of all kinds,
and Apricots.*

VHen they bee very ripe, then you must pare off the vpper skin, and cleane them into foure quarters, and dry them as Figs, and barrell them, to keepe them for winter.

The manner how to dresse them, after they are dry, for to eate them, is this; You must prouide a cleane earthen pot, and after you haue washed your Peaches in faire water, then put them into the pot, and put in as much Wine as will couer the Peaches, and then see the them halfe a quarter of an houre. Also they may bee made ready another way without boyling them, by putting them in wine, and foking them three
or

• or foure daies; and this way they are better. Also you may put in some Cinnamom in powder; in this manner you may keepe them one moneth within the said pot. Vſing them euery morning, they prouoke an appetite or good ſtomack, and are very wholeſome.

19. *How to hinder wild beaſts, from eating the fruits in the night.*

YOU muſt make fires in ſundry places, and namely, in euery ſuch way as leadeth to the wood, and that only in the night, and no wild beaſt will come neere them. And ſpecially doe this about the Vineyards, from the time the Grapes begin to be ripe, vntill they be wholly ripe.

20. *Advice for thoſe in Virginia, touching the place for to plant Vines in.*

FOrasmuch as euery plat of ground is not fit for the Vine, it were good and conuenient, that euery Towne and Village, wherabouts is, or ſhall bee found any good or proper ground for that purpoſe, that there the inhabitants ſhould plant Vines one neere another: and ſuch men as haue intreſt or right to ſuch grounds, may change them for ſome other, in another quarter of the Countrey, according to the quantity, that euery one may be able to apply himſelfe vnto. For the Vines being thus ioyned together, will not coſt

more to keepe then one plat; Neither shall the wild beasts eate any the more; and so one may helpe another, and learne one of another like good neighbours.

Conclusion.

I Haue many more vsfull things to impart, which for want of leasure I must leaue vnpublished till some other time. Wherefore I will now onely heartily recommend these my approued experiments (which I haue sent you) to the care and diligent practice, of you the Colonies of *Virginia* and the Summer Ilands. If you cheerefully apply your selues to these instructions, I shall be incouraged to doe more and better seruice for you heereafter; and you for your paines, I dare assure it, shall be richly recompenced with ample profit. Especially, and aboue all others, if you constantly pursue those two most inualluable commodities of Silkes and Wines, which you may with ease and little cost bring speedily to perfection. For Nature (which doth nought in vaine) hath euery where for this purpose, most luxuriously stored *Virginia* ready to your hands, with excellent Mulberry Trees, and Vines of diuers sorts, which none, though neuer so malicious, or can, or dare deny. Since then that Nature her selfe, as proud of this her sumptuous worke, beckens you to her, and points you round about, with her bounteous hand, to behold heere in euery place, her braue Mulberies, and her merry Vines, listen no more to me then, but hearken to her

her now, what she sayes and truly counsels you, most part from her selfe, and some part of what she hath heard from others.

And thus she speakes vnto you:

Friends of my best beloued Nation, view mee well, and tell mee if you are not come into another Land of promise, into another Paradise? to passe by my most fertile graine (so much of all commended) the nourishing Maiz, and many other things; behold now onely, my two great Treasures, my richest Plants, my Mulberies and my Vines, which I haue purposely prouided ready for you, and that abundantly, without your care, without your cost or charge. Beleeue mee, I make all my least and commonest workes, for some good purpose euer, much more these then that are so precious. Regard them well. I heare you all confesse now, they are rich and beautifull: How haps it then, that I and they are slighted so much by you? and that which worst is, all for a smoakie Witch? I haue heard some say, that dice are made of Coniurers bones, and cards of Witches skins, whereby those that handle them, though they lose still, and are vndone by them, yet they can neuer leaue them. Sure there is some such sorcery in this weed; it was first sowne (it seemes) by some Indian Enchanters hand, with spels and Magicke verses, or otherwise you could neuer so much dore on it. For all the fruit of this, it is but smoke, which vanishes, and likely will not alwayes last. But these my two other bounties I haue giuen you, for Silkes and VVines, be they neuer so plentifull, yet shall they be alwayes durable,

and generally staple, to your excessiue gaine. Doe not then still *Ixion*-like, imbrace a cloud, for *Iuno*, and smoake, for substance. Let but the fruitfull soyle and happy Clime heere (the chiefe nurse of these and all other plants) perswade you for mee.

All Authors of Agriculture will tell you, that neither Arable, Pasture, Meddowes, nor any other grounds, are so proper to plant the Vine in, as those cleered grounds are, wherein not shrubs, but tall Trees grew. And what Countrey in the world so full as this, of tall and goodly Timber trees? so as when you cleere your grounds, you easily may remooue your Vines into them, and the remoouing giues them also a perfection. Likewise may you leaue your Mulberies still growing, euen where you plant your Vines: for such loue and affinity there is betweene these two, as good things alwayes goe together.

That the soyle and Clime which fits the one, fits the other; and what the one loues or hates, the other doth the like. Were not this knowne to all, yet the abundance of them both, so naturally growing here together, would, without other experience, sufficiently confirme it. Againe, were not this Countrey and Climate heere most proper which I haue chosen for them, you should not haue seene them, be sure of it, so freely and willingly flourish euery where as they doe. For this purpose compare *Virginia* now, with other Countries, that are seated in the same degree of latitude that shee is, marke their Commodities, and you shall see, that shee is

as well a kinne to them, in them, as in the same degree. Your great Mathematician *Harriot*, who liued sometime in *Virginia*, and who with many praises (iustly due vnto her) wrote of her, and her Commodities, saith in that his booke, that she is seated in the same latitude that *Persia* is: And they that haue trauelled *Persia*, and write of it, will tell you * how it abounds with all good graine and fruits, and how it exceeds in Silkes, and Wines, as this her Cousin-german, in the same degree, *Virginia*, doth the like, with Mulberies, Vines, Maize, and other graine.

Virginia in the same degree of latitude that *Persia* is.

Paulus Venetus,
1. Booke,
19. Chap.

Another, an eye witnesse also of *Persia*, saith, that * *Chorazain*, a Prouince of that Countrey, is so fruitfull of all things, that a dearth is neuer knowne there: and that you may see in one onely City, called, *Eri*, such store of Silke, as in one day you may buy as much as will load 3000. Cammels. And who knowes not, that the abundance of Silke, raised from the propriety of that soyle & Climate, is the vnspeakable rich Staple Commodity of that great Empire? These Silkes are the sinewes of the *Persian* State, by which treasure, the *Sophy* is enabled still as hee doth, to wage warre with the Turke, to the great good of all Christendome. I need not tell you, by the way, how hopefull a Trade this is to the English East India Company, if it bee not (as pity it were) sinisterly hindred.

* *Ludouicus Romanus*,
3. Booke,
19. Chap.

For by this meanes great store of Clothes may be vented there, multitudes of poore set on worke, and England enriched, and made in time the *Mazagazin* for silkes. And by this fetching of silke still

See *Maister Munroes*, and *Maister Misseldens* bookes
from of this.

from the fountaine head in *Persia*, the Turke shall be deprived of this great Tribute, weakened in his treasure and impouderished; and the *Persian*, by this Trade, bee the more enriched and strengthened against the Turke, to the common good of Christendome. And I hope all good men will wish this Trade to prosper and proceed still with the *Persian*, farre rather then with the Turke. So much the more, for that all Authours and Trauellers report,

* *Paulus Venetus*,
Mercator.

* The *Persian* to be courteous, gentle, liberall, kind to Christians, and a louer of learning and of Arts, especially Astrologic, Physicke, and Poetry; so as when there shall bee an Ambassadour once settled with the *Sophy*, there can be expected nothing but all good vsage, with a greater gaine. The Turke contrariwise is rude, barbarous, cruel, couetous, perfidious, a Christian and a Learning-hater. The loue of *Persia*, so like *Virginia* in many things, hath made me stay longer in her then otherwise I would: but now I will take my leaue of her, and her rich store of Silkes, and leade you thence, to a greater and a more opulent Empire yet, to *China*, * which also is seated in the same degree of latitude that our *Virginia* is: and heere you may see how likewise they two are a kinne in sundry naturall Commodities, which by reciting and comparing of them, you shall easily perceiue. *China* is stored with Woods of Mulberies to feed Silke wormes with, and such abundance of Silkes they make, * that at the City of *Nimpo*, which others call *Liampo*, the *Portugals* haue obserued 166000. pound waight of Silke, carryed out in Ships,

* *Virginia* in
the same degree
of latitude that
China is.

* *Joh. Barrius*,
Decad. Asiae,
Mercator.

Ships in three moneths space.

Into *Cambula*, the chiefe City of *Tartary*; there come every day from *China*, about a thousand Wagons laden with Silke, as * Authours of no small credit, and one that was there, reports. *China* also is full of nauigable Riuers, and is fertile of all graine, Maiz, Rice, and others, of which it hath three or foure Haruests in a yeere; it is stored with Fish and Fowle, it hath Mines of Siluer, Brasse, Iron, and other metalls, Quick-siluer, Niter, Allom, and precious Stones, Pearle, Muske, Cotton, Rubarb, *China* roots, store of Flax, and rich Furres. They lose not a span of ground, but all places are employed to their proper vse: the dryer, they sow with Wheat and Barly; the moyest, with Rice and Sugar canes: Hills and Mountaines abound with Pinetrees, and Chessnuts, betweene which they plant Maiz, and sow Panicke, and all kind of pulse: in other proper places, are Mulberry Groves, faire Gardens, Orchards, and Flax grounds, no waste Land, but all put to some good vse or other. It is not my purpose to speake of the sharpe wit, or of the excellent Art and industry of the *Chineses*, wherein they equall, if not exceed all Nations of the world againe: that is besides our matter now: but as there is a consanguinity betwixt *China* and *Virginia*, in the same degree of latitude; so I will onely compare and shew the like affinity and agreement betwixt the natieue Commodities of the one and the other Climate: *China* hath store of Maiz for food, and Mulberry trees for Silke, and what Maiz, and Mulberies *Virginia* hath, is so well knowne to all,

Paul Venetus.
Mercator.
Bertius Geo-
graph.

* *Consules*
Mendoza historiz
Of China.
1. Booke,
3. Chap.

as of that I need say no more. *China* yeelds store of Fish and Fowle, *Virginia* hath the like; and for Fish, no where more plenty, nor so large as there: witnesse your many Sailes, that yeerly come out of England hither, for this purpose, so as at this time, it makes a great trade, and will yeerely more and more increase still, especially after your Salt-works (that are now setting vp) are finished; and for the Flax of *China*, you haue naturally growing in *Virginia*, Silke-grasse, Flax, and Hempe, of diuers sorts, and of approoued goodnesse, and which culture will yet much more perfect. You haue likewise, as *China*, knowne Mines of Iron, and of Copper, and of other richer Mines also you haue more then hopes: *China* hath Pearle, and some of the Indians weare it in *Virginia*: as it hath Muske, so hath *Virginia*, the beasts called by some, *Muscassies*, which haue good Muske, and by all likelihood are of the same kind. The rich Furrer reported of *China*, are exceeded by *Virginia*, in store of Beares, Otters, Martins, and black Fox skins, besides many others, of which the French and Dutch haue made hard by you heere, a great trade, these many yeeres. As for the other naturall commodities, mentioned, that *China* hath, and are not yet here knowne to the now Colony, as Rubarb, *China* roots, * Niter, Allom, Quick-siluer, &c. You may probably at least presume, considering that *Virginia* consorts with *China* in so many knowne things, as in the same height, the like happy tempered Clime, the like fruitfull soyle, the like many nauigable riuers, the many like natieue knowne Commodities, already named:

* Mercator in his description of *Virginia* saith, that it hath Allom, Niter, Pitch, Tarre, Turpentine, Iron, Copper, Silke, Flax, Hempe, Tobacco, and precious Stones.

named: you may probably presume (I say) that time & your industry, in diligent searching (which for these reasons you ought the rather to quicken) will discover also heereafter many of these, if not all vnto you. And as for the other commodities that *Virginia* hath not at all as yet, as Rice and Sugars, likewise none may doubt, seeing the soyle and Climate heere are indued with no contrarieties, extremities, or distemperatures to hinder the growth of them, but hath all conueniences alike fitting for these purposes; there is no doubt then (I say) but that when they are once transported hither from other places, and planted heere, but that it must needs prooue capeable of them, being so naturally fitted already for them. Neither yet is it to bee thought, that any cultivated Country in the world, though neuer so fruitfull, had all things at first there naturally growing in it, as now it hath, but that many of them were brought afterwards thither from other places. And so in like sort, the Spaniards haue transported out of Europe and the East-Indies, diuers plants of fruits, drugs and dyes, and many rich commodities, which they haue prosperously planted in the West Indies, to their great gaine, as may easily bee shewne. And you, if you consider your store of your plaine, moist, fat, and fruitfull grounds, and your goodly riuers by them, for helpe of water, you cannot doubt but that you are most fitly provided for the entertaining and bringing vp of Rice and Sugar Canes. You haue already made succesfull triall of other grounds, which prooue most proper for Cotten

* *Mercator*, in
his description of
Virginia.

* *Mr. Perce*, the
Cape-Merchant,
under his hand-
writing.

* *Mendesa*, Hi-
story of *China*.

wooll plants and Indico, for the ordering of which, and of many other more profitable commodities, you shall shortly (as I heare) haue directions printed and sent vnto you. Now for the three or foure Haruests which *China* hath yeerely, so as dearth is neuer heard of there: It is knowne likewise and written of **Virginia*, that at *Roanoak* they reap three Haruests in fve moneths space: they sowe in May, and in Iune, and in Iuly; and reape againe, in Iuly, August, and September. And as for that part of *Virginia* which is now planted, there is * one of the most ancient and expert Planters now in England, that credibly auesres, that they may, and doe begin to sowe of our Countrey graine in September, and so after continue stil their seed season for wheat very well vntill the middle of February following, and about the end of Iune, they begin to reape the first Haruest of Wheate and Barley, which is very good, and in the other moneths after, that which was later sowne. Whereupon is to be inferred, that *Virginia* hauing store of Ploughes and good Husbandmen, need not onely neuer feare dearth and scarcity, but may by the many seedings and many Haruests, bee made a Countrey as plentifull of all graine, as *China*, or any other whatloeuere in the world. Besides, some knowne commodities you haue, which *China* wants: to omit others, that which is called *Terra-Lemnia*, formerly a peculiar treasure of the great Turkes onely, * and Wine of Grapes, whereof they haue none: for all theis are made either of the Palme tree called Cocos, or of the Palme that beares Dates, which being exceeding good,

good, and made with diuers mixtures, after diuers fashions, this perhaps makes them lesse care either to plant or to dresse the Vine. But to bid *China* farewell now, and the multiplicitie of her commodities and her affinities with *Virginia*, I will returne againe to speake particularly of our *Mulberies* and *Silke*: and for this purpose I will now carrie you into *France* and *Italy*, onely to viewe the rich and mighty profits that they make of them: Notwithstanding their *Mulberry* trees (which are esteemed alwaies to counteruaile the halfe of all the whole charges of this businesse) are not produced by the earth of her owne accord, with my helpe onely, as here, but by labour and industry and expence. * *Augustino Gallo* an excellent Author of Agriculture saith, that but a few yeeres since (finding the sweete by keeping *Silke-Wormes*) in the Territory of *Brescia*, they did yeerely sow Millions of *Mulberry* trees, which after foure yeeres growth, the best and fayrest of them were remoued, to bee planted by high way sides or other places, where they thought fitting, and that both noble and ignoble did take such a pleasure in keeping great store of *Silke-Wormes*, so as gaine quickening their industry, they did more and more amongst all sorts yeerely augment this businesse. * It is not about twenty yeeres, since these *Silke-Wormes* were generally set vp in *France*, *Henry* the Great, with great wisdome appointing Commissioners for that purpose.

* *Le Tellier*, in his booke of the *Silke-arte*,

K 3

saith, &c. pag. 3e

* *Agricoltura
Giornata. 16.*

* *Ol. Serres.
Agriculteur.
Booke 5. cap. 15.*

* *Le Tellier
memoires &
instructions,*

faith, that the inuention and first knowledge of Silke, came from the East Indies into Europe about a thousand yeers since, & was brought into *Italy*, not about two or three hundred yeeres agoe: for before that time, this fabrick and worke was more rare and strange there, then it was about twenty yeeres since, in *France*, afore which time (though not many yeeres since) the people of *Prouence*, *Languedock* and *Dauphine* (the neighbour Prouinces to *Italy*) applying themselves to this Silke-Worme, found the progresse so easie and profitable, insomuch as the sole reuenuew of Silke, brings more money (saith he) at this present to those Prouinces, then all their Corne, Oyle, & Woad, together, which notwithstanding are there in very great abundance; * Another faith, that *France* must saue and gaine by the progresse of this Silke fabrick, about foure millions a yeere; *Italy* then incomparably more: and yet *France* for the getting of this great gaine, makes of the Silke-wormes breede, of one ounce of Seede, in the most places, but fise or sixe pound of Silke, euery pound worth two & three French Crownes and somewhat more. Yet in the better parts of *France*, as in *Languedock*, and *Prouence*, they make seuen or eight pounds of Silke, of an ounce of Silke-seede. * But in *Italy*, namely, in *Brescia*, they make of one ounce of Spanish Silke-seede, eight, nine and tenne pound of Silke, and the Silke-Wormes spinning of this ounce of Silke-seede, cate but about two hundred and fifty pound waight (after the * pound waight of *Brescia*)

* Ol. Serres
Agricultur.
Booke 5. cap. 15.

* Agostino Gallo
6. Giornata
of his Agri-
culture.
* The *Brescia*
pound waight is
twelue ounces
waight of *Genoa*
and eight ounces
waight of the
great ounce of
Brescia.

Brescia) of Mulberrie leaues to make the said quantitie of Silke; And of an ounce of *Calabrian* Silke-seed, they make there in *Brescia* cleuen and twelue pound waight of Silke, and the Wormes of that seede (as being of a bigger breede) eat about three hundred *Brescia* waight of Mulberry leaues; and no doubt but in other places of *Italy*, which are yet more proper for this businesse, they make of the like proportion of seed, a greater quantity of Silke then this.

Such difference there is betwixt Clymate and Clymate, in the naturall propriety of it, to the great increasing and bettering of this worke. Considering therefore the great charge and labour, that *Italy* and *France* is at, in planting of Mulberry trees, and for that purpose sowing Mulberry seeds, and expecting sixe or seuen yeere after (for so long it is ere they grow to perfection) afore they can make good profit of them, and considering besides, that their Clymate is nothing so proper for this Silke-commodity, as *Virginia* is, and yet for all that, they make their greatest gaine of it;

It cannot be doubted then, but *Virginia* hauing infinite store of the best sort of Mulberry trees, ready growne vp to your hands, without your charge or labour, and hauing the Clymate (as is experimented) more naturally proper for this worke, and the food for the Silkwormes better, whereby they become more strong, to passe their naturall and other casuall sicknesses with lesse danger, and so are generally more health-

healthfull, and also are bigger bodied, and make larger Silke-bottomes, and finish their worke in a shorter time then other doe other-where; hauing all these preeminences, it cannot be doubted (I say) by any reasonable man, but that *Virginia* is euery way better fitted, to yeeld incomparably a farre richer profit by the Silkeworkes to you, then *France* or *Italy* can doe to them.

And if in *France*, their profit be thus rated by them, which account alwaies, that the fourth part of the price of the Silke defrayes all the charges, there remayning three parts of cleere gain to the Owner, and in *Italy*, a sixth part will discharge all expences, making five parts of cleere gain, where they reckon neuerthelesse, that the price of the Mulberry leafe (as I will shew by and by) counteruailes the full halfe of the whole charge of the Silkeworke; you may then certainly assure your selues, that in *Virginia*, where you haue what store of Mulberry leaues you will for nothing, with all the other aduantages afore mentioned, that the tenth or twelfth part of your Silke you make there, must needs cleere all your charges, and make nine, ten or eleuen parts cleere gain to your selues. Your chiefe charge will be, for the gathering of the leaues to feed the Wormes. A man and a boy will feede the Wormes, comming of fixe ounces of seeds, till they be past their fourth sicknesse, and within a fortnight of spinning. But for the last fortnight, because the Wormes must be then carefully and often fed (that being the chiefe time, where-

wherein they conceiue, and store vp the matter for the Silke, which they after vomit out and spin) then you must adde three or foure helpers, to the other two aforesaid.

For the feeding, and shifting of the Wormes, and other imployments, women, children, and impotent persons may be vsed. And as one skillfull gouernour of the Silkewormes may imploy hundreds vnder him, so he may in sixe weekes space, easily teach them the chiefeest points of this art, if they be capable, and will addiect themselves to the learning of it. * The Gouernour

* Ol. Serres

of the Silkewormes in *France*, hath two, three

ibid.

and foure crownes a month, besides his diet: and his charge continues, from the first hatching of the Wormes, to the finishing and winding of the Silke. * Moreouer, you must not thinke it to be absolutely necessary, to be so superstitious in curiously following all the booke rules and written precepts, so as if any of them be omitted, or euery thing be not precisely followed, in the hatching, lodging, feeding, and tending of the Silkewormes, that then all the businesse is spoiled and ouerthrowne: for it may notwithstanding profit and succeed, to the contentment of those that keepe them. Onely let euery man doe what he can commodiously, to his power and ability, and assure himselfe, though he keepe not all strict rules in euery thing, that yet he may make a great gaine, notwithstanding still the greater, the more curious he be in obseruing and practising all the approued experiments, Rules,

* Le Tellier in
his Booke of the
Silke-art.

L

and

and precepts hereunto belonging.

These Rules are chiefly to shew the perfection of this Art, and that also a man may learne thereby, that if the Silkwormes miscarrie or prosper not so well one yeere, what might be the cause of it, and where the fault lay, and how next yeere that may be remedied which was amisse afore, without despayring or being discouraged. Besides you must know, that all generall Rules euer admit some exceptions, and varie according to some particular circumstances. And therefore to make the Rules the surer for you, the nature of the Clymate must be obserued, how and in what one Clymate differs from another, as also the season of one yeere, altering from another, in cold, heat, drought, or moysture, the manner of the lodgings, the qualities of the windes, to be let in, and kept out vpon occasion fitting, and so according to all the different qualities, to gouerne this worke differently with discretion. As if it be a cold season, to vse more artificiaall heat, for the cherishing the Wormes; if it be a verie hot season, to let in the coole ayre and the windes, as much as may be to refresh them, especially when they spin their Silke, for feare of stifling them with too much heat. If it be a moist time (the worst season of all other euer for the Silkwormes) to vse drying heats and perfumes so much the more, to qualifie the moist and the ill season, and to be carefull, that the Mulberry leafe be wel dried, and kept the longer after it be gathered, afore it be
giuen.

giuen. But if the season be dry, then consider, that the leafe, after it hath lyen and cooled a while, may be giuen the fresher, and the Mulbery tree roots may be watered in these droughts, to refresh the leaues, as they doe sometimes in *Spaine*, especially if it be in a drie and hot ground, which otherwise without these cautions were not so good. Then must you consider also, if the Mulbery tree grow in a shady place, or in a sowre, foule or wet soile, what inconuenience that food may bring vnto the worm, & thereafter either to auoid it wholly, if it be possible, or else to qualifie it as well as may be: Neuerthelesse noting that in a hot and dry yeere, a man may be more bold to feed with those leaues, that grow in a shady or moist ground, by reason the temper of the season hath the better corrected the ill quality of them. Thus regard with reason alwaies, what kinde of ground the leafe grew in, and in what qualified season you gather it in, and consider the kinde, and nature of the tree, and the nature and kinde of the Silke-seed you vse, and according to all particular circumstances, well pondered, so to make your exceptions, and to order euerie thing with iudgement, and discretion thereafter. Time and obseruation will teach you many experiments, out of which perhaps some more rules of art may be made, as best fitting in some particularities, the Countrie and Clymate of *Virginia*, which finding, after good triall made, you shall doe well to set them downe in writing, that in time they may be published.

also, for the better directing, and profiting of others. And because in *Persia* (where such infinite store of Silke is made) it is not likely, that they tie themselves to all the strict rule, and niceties, which for the most part are necessary to be observed in many Countries, but doe what is fitting otherwise, for that Clymate, most proper for this worke; (with which *Virginia* so neerely agrees, and naturally consorts as is aforesaid) for this especiall purpose therefore, meanes are made (I heare) to certifie you from the English Factory in *Persia*, of the art and order that they vse, in all particulars, for the Silke-workes there; which may guide you, happily, to a more compendious and ready way, for the better speeding of this rich businesse. And yet where all these rules are curiously followed, they make not onely *Spaine*, and *Italy*, but in the worser parts of *France*, and other-where, a farre greater gaine (so much for so much) by feeding the Silke-wormes, then by any other commodity whatsoever. Insomuch as some Gentlemen in *Italy*, which keepe no Silke-wormes themselves (and which are therefore of the worst sort of husbands) yet by letting out their Mulberry trees to others, for the lease onely, make a great part of their reuenues, some 500. li. some 1000. li. a yeere; some more, some lesse, according to the number, greatnesse, and goodnesse of their Mulberry trees. * So likewise in *Auignon*, *Dauphiné*, *Languedoc*, *Prouence*, and other parts of *France*, some let out their Mulberry trees to others, from

* *Gl. Serres*
ibid.

two shillings, to twelue shillings apiece and vp-
wards, accordingly as they are. * But some * *Augustino Gallo, ibid.*
other Gentlemen in *Italy* let out their Mulberie
trees, after another maner, namely, they are at
the charge onely, to giue the lease of their Mul-
bery trees, to some poore folkes, for which they
are to finde at their cost, the Silke-feed, and are
to feed and tend the Wormes, till they haue
made their Silke: which done, they deuide the
Silke bottomes, by halues betweene them. Thus
you see, what a rich reuenue I haue provided for
you, in Mulbery trees alone, which are halfe the
charge, and yet cost you nothing. And I hope I
need not tell you, how it is a matter, no lesse pro-
fitable then easie, for the better aduancing this
Commodity, to build for this purpose farre from
your houses (if need be) in the most conuenient
places, of the best Mulbery woods, some slight
Silke-worme lodgings, soone set vp, and with
Stoues in them, after that excellent manner
of *Sicilie*, formerly described; which by this
Art may correct the ill site and temper, and qua-
lifie the Ayre well, in the cold, moyst and shady
woods, lest otherwise that might be a hindrance
to this worke. And here also in these lodgings,
you may make good shift (especially for so great
a gaine) with necessary prouisions to lodge your
selues, from the beginning, to the end of your
Silke-haruest time, about some fixe weekes only:
where you shall need but one third part of your
companie, the first foure weekes, and two third
parts more, the last fortnight onely, for the often

then and plentiful feeding of the Wormes. To inuite you to this enterprife, you haue abundance of choyce Materials, to erect these Silke-lodgings with, which will cost you nothing, but a little labour, to cut out some posts, and to fit them and set them vp; or to sawe out small quarters, and rafters, and planks, and boords, to fence the sides in stead of walles, and to couer the roofo in stead of tiles; all which must be so close layd in all places, one within another, that no raine, winde, nor weather get in at any riftes or creuises to hurt the Wormes. Which the better to preuent, the chinkes (if any be) may be all stopped, euery where about, with some loame or clay. And thus for their better profit, may many Families (especially of the poorer sort) ioyn hands together, for the speedy setting vp of these Silke-lodgings, and for the gathering and sorting of the Mulbery leaues, and for the helping and teaching one another to feed and order the Wormes, and so worke, and liue together, all the Silke-haruest time, and at the end of it, to deuide all the Silke bottomes made amongst them, by number, weight, or measure, after the number and proportion of euerie Family, and person; as to some one, some two, some three, some foure shares, and so more or lesse ratably, and according to their first agreements set downe in writing. Here also in the meane time, for their better sustenance, may they commodiously keepe neere about them, their Poultry, Swine, and Milch cattell, for milke and butter,

butter, and spare their owne pastures neere home the while.

Thus you see, what rich benefits I affoord you, for your small labour onely. And if I should giue you all things perfect, without your paines at all, I should breed but mine owne contempt, and nurse your sloth. For these my great commodities, and all other then, I aske some little attendance of you (iustly due vnto me) to bring them to perfection. Giue me but two hand-maids onely, Art and Industry, to waite vpon me, and I will most honourably and richly then endow both them and you. And for this purpose now (not to speake of Husbandry at large) I will chiefly commend the skill of Gardening, to you all and euery one. Let none be ignorant to sow, to set, to plant, to graft, to manure, to dresse, and order all plants, according to their kinds, and that in proper grounds and seasons fitting them. This is part of that skill, which Emperours, Kings, and Senators of *Rome* haue both writ of and practised. Let no man then disdain it, but get and peruse their and such like Bookes of this, and other Husbandry. I know not whether the profit of it, or delight be greater. Wherefore all and euery one in *Virginia*, men and women too, from the highest to the lowest in some proportion, must know and practise it, if they minde to thriue, prosper, and haue true delight. By Gardening alone (especially in these rich grounds and temperate Clime) may all haue delicate variety, and good sufficiencie of sustenance, were there nothing else, for Summer and for Winter. Besides the Cassau, for
good

* *Julius Scaliger.*

good bread, I might particularize the wholesome and great variety of many other nourishing roots and herbs, and of other Garden and Orchard fruits, in these hotter Countreys especially, most excellent for food. And this was the chiefe sustenance of the wise and sober Ancients in the golden times. *Panis* and *Holus* (* by a most learned and iudicious Writer) are deriued from two Greeke words, that signifie all, and the whole: for the Ancients esteemed (saith he) that if they had but bread and Garden fruit, they had all and the whole, and euery whit that was necessary for their food. Neither is this all: for as you may be fed, so may you bee clothed also, by this skill alone, as by the expert planting of Cotten, Silke grasse, Flaxe, Hempe, and some such other like. Besides, the Art of planting well followed, as it can, so will it bring you to the greatest wealth about all things whatsoever else. I need not tel you besides of the Mulbery plants for Silkes, the infinite treasure by planting Vines, Olive trees, and Sugar canes, for Wines, Oyles, and Sugars, nor of many other rich Plants, for Physicall Drugs, Dies, Paints, and many other vses. And as for your Wine and Oyles to be made heere, besides many other profits, you shall therein bee advantaged, about the *West-Indies* also, which haue neither of these two Commodities; the King of *Spaine* in policie forbidding the planting of them there, notwithstanding the Countrey is very proper for them. For they two being the great Staple Commodities of *Spaine*, the *Canaries*, and other his Dominions, with which they abound, and knowing

knowing that trade of Merchandize consists in bringing in of wares from one Countrey into another, maintaines mutuall trafficke therefore, betwixt his *West Indies* and his other Dominions, by the taking of the Commodities of one another, which cannot be done, vnlesse one Countrey haue store of those Commodities, which the other wants; For store of the same Merchandize in all parts, would but glut & hinder all. Wherefore to ballance the Commodities well of all his Dominions, for the good of all, the planting for Wines and Oiles in the *West Indies*, vpon good reasons were inhibited. The like he doth in *Brasilia*, who though they haue store of Ginger there, yet may it not bee carried from thence into *Spaine*, for feare of impouerishing them of *S. Domingo*, whose chiefe Trade it is to get their liuings by. And the like doth Great *Brittaine* for you heere, which suffers no Sheepe to be carried thither, that Cloth might not be made there, but so orders it for the good of both, that you heere shall haue from thence, her natieue Commodities, and her Manufactures onely, and vse no forraine Merchandize, but such as is for health or like necessity, for which you returne the proper Commodities of *Virginia* thither.

Moreouer, by the Art of skilful planting, grafting, transplanting, & remouing, the bad wild plants are wonderfully bettered: Insomuch, as one of the best Authors of Husbandry saith, * that euery replan-
 * *Ol. Serres*
 ting or remoouing of wilde plants (hauing regard to *Book. 6. Cha. 17.* the fitnessse of the soile and season) is worth halfe a grafting: so as two remooues then, are worth a

M

whole

Plin. natural.
Hist. lib. 17. c. 10.

whole grafting. One that hath writ a Historie of me, sayes well and wittily, * that this remoouing and transplanting of wild plants, doeth wonderfully mitigate and a ingentle them, whether it bee (saith he) because that the nature of plants, as of men, is desirous of nouelty and peregrination, or because that at their parting (from the former grounds) they leaue there that ranke wildnesse, virulence, and ill quality that is in them, and as wild beasts, so they become gentle by handling, whilst the Plant is pluckt vp by the roote.

Since then the transplanting and remoouing wild plants, doth so much domesticate and innoble them, I need not tell you then, how by grafting, or remoouing only, the Mulberry trees and wild Vines may infinitely be bettered; To shew this, I will instance in one Plant for all. In the printed Booke of the valuations of the commodities of *Virginia*, Sarsaparillia wilde, is five pound the hundred, and Sarsaparillia domesticke, is ten pound the hundred: so as the *Spaniard* hauing no other but the wilde Sarsaparillia at first, yet by replanting and cultiuating that, hee made it domesticke, and so much thereby innobled it in worth and goodnesse, as raised it to a double price you see. And the like is to be done with other wild plants, by the often remoouing or grafting of them. As he then that was asked, what was the first, and chiefest thing in Oratory, said, Pronunciation: and being demanded what was the second thing in it, and afterwards, what was the third, still answered, Pronunciation: so if I were asked what were the best Art, chiefly to
aduance

advantage the Plantation and Planters; I should answer as oft, or oftner, the Garden Art of planting, planting still. I could wish therefore, that every Free-holder, besides his proper profession, should be enjoyned to have a Garden, and practise sometimes Gardening and planting: And that according to the custome and wise institution of the Romane Censors, those should be severely punished, that did not husband well their fields and Gardens, and well culture their Vineyards, Trees, and Plants. Let every one then in *Virginia* and the *Summer Islands*, that mindes to have plenty of healthfull food, and of good raiment, and of great wealth, let him begin to addict and delight himselfe, in this most profitable and pleasing Art of Gardening and grafting.

Now whereas the labor of cleering the woodded grounds heere in *Virginia*, is supposed by some to be a hindrance to your profit; it is nothing so; for the many great commodities that to good husbands may arise, by the wood still cleered off the grounds, will with large interest, meane while, repay the cost and labour, especially after that excellent and rare inuention of Saw-Mills (an incredible advancement to the Colonie) bee once put in practice. What should I speake of the store of Timber, so necessary for your buildings, and other vses? for Clapbord, Pipe-staues, and other rich wood for noble seruices? or of the abundant store of wood, neuer to be spent, for your Iron workes? and for your Glasse Furnaces now set vp? for Pot-ashes, and Sope-ashes? for boyling of Sugars? and

of Pitch and Tarre? and for all Furnace works? (the great deuourers of fewell and destroyers of woods) besides of the great vse & profit of propping your Vines, by whole Trees or by stakes? & for poles for the Hops which grow here wild? But aboue all, what endlesse store of excellent Timber haue you for the most excellent vse of building Ships? And heerein I cannot, I confesse, conceale the pride I take in my *Virginia*. For what Countrey in the world againe, abounds so plentifully as this, with all things whatsoever for making Ships? no one thing is wanting; for besides Timber of all sorts, for all vses in this kind, and store of Masts, no where taller and larger; you haue tried Iron also of perfect goodnesse, and Silke grasse, Flaxe, and Hempe, as well for Sayles and Cordage, as for richer vses, and Forrests of Trees for Pitch and Tarre, so as nothing for this purpose was lacking heere but onely Shipwrights, which now also with great wisdom are lately sent, to build you Boats and Pinnaces for Trade, and Busses, for the richest fishing here that all the world affords. Of Cod and Sturgeon, of great skulls of Herring, as big againe as those in other places, and such plenty also of other excellent fish vnknowne to these parts, that by credible report, * there haue beene 5000. taken at a draught, the least, of two foot in length, whereof likewise there might bee a great gaine made, by skilfull salting, pickling, or drying of them. Moreouer, besides the increase of shipping and of Mariners, and the store of sustenance that this fishing may yeeld vnto the Colony (for which purpose therefore, no housholder that

is

*21. Purchas in
his Pilgrimage.*

is a good husband, will be without his Fisherboats and nets for his owne prouisions) there be yet other great aduantages and profits also that it brings with it : namely, the fishing vpon the coasts of *Virginia*, being much more timely then in other places, your Marchants haue made their prime Markets, and are ready to returne, before others come that bring their fish from other places. To this : Salt being made now in *Virginia*, you shall with small charge transport great multitudes of people hither : for since there may well bee many hundred Saile imployed in fishing here, people will be brought most part for the Salt, that they will lade heere for their fishing, which will cost you but little. And by this meanes also, may a double profit be raised vnto the Planters, by bringing their people hither euery fishing time, and as occasion serues, taking some of his men here with him to helpe him fish; which done, he sends them backe againe vnto the Colony, to follow his Commodities and his other busineses.

But to goe on, though this bee granted by some, that the store of wood in *Virginia* well vsed, is no impediment, but a matter of singular benefit to the Plantation, yet others obiekt some other hinderances by the native Sauages. But as for the many aduantages that arise, rather by the iust warring with them, and vanquishing of them (a matter so easie to bee done) I referre you to the last declaration of the State and Colony of *Virginia*, where the reasons are well and fully handled. As for my selfe I vtterly disclaime them, they haue done against all my Lawes, they are most vnnaturall, and so none of mine.

Arist. 1. Politic
3. Cap.

mine. And therefore they that know no industry, no Arts, no culture, nor no good vse of this blessed Country heere, but are meere ignorance, sloth, and brutishnesse, and an vnprofitable burthen onely of the earth: Such as these (I say) like the *Dai* and *Syri*, and such other people, are naturally borne slaues, as my chiefeſt * Secretary well defines: And there is a naturall kind of right in you, that are bred noble, learned, wise, and vertuous, to direct them aright, to gouerne and to command them.

But others now there be, perhaps, that are discouraged frō this worthy enterpriſe, by railers & scoffers at this noble Worke, men next a kin, indeed, to these hateful Sauages, enemies herein to God, their King, and Country; But regard not them. *The mocker not regarded, is mocked himſelfe.* Goe on then, and cheerfully proceed, eſpecially in those my two fore-praised great Commodities, which if you doe, as you know not yet the twentieth part of them that this rich Country yeelds, so those then also, I will shew heereafter to you.

Amongst all which, the most honourable and the chiefeſt is, that by the industry of some noble and heroicke spirits (borne to immortalize their names and nation) a passage to the South Sea, will, beyond our Falls and Mountaines, through the Continent of *Virginia*, assuredly bee found. All the Indians from *Canada* to *Florida*, relate, that there is beyond the Mountaines here, to the West, and Northwestward, a great Sea, and men and Ships, in shape and fashion like to yours that Trade there: So as this can be no fiction nor no falshood: these diuers nati-

ons

ons being so farre asunder, all constantly agreeing in the same report. By this discouery and passage to the South Sea found, being from our Falls (by the Natiues relation hereabouts, and by the iudgement and computation of most learned Mathematicians) about a fortnights iourney onely, or thereabouts, part to be made by land, and part by water, by some riuers leading to that Sea: what an infinite rich trade may there bee made from hence to the *East Indies*, to *China*, to *Cathay*, and other places in the South Sea? For this passage, as it will be short, safe, and easie, so will it not only saue the liues of many men now daily lost, and spare much shipping of necessity wasted, by the great long voyages that now are taken, but will also bring great wealth and treasure, trebling the gaine now got, by your quick returne that will be heereby made. Moreouer also, what a great rich Staple? what a mighty Magazine of Commodities for all Christendome, will bee thereby erected in *Virginia*, and make the speedy peopling, aduancing, strengthening, and enriching of it, to the great and endlesse honour of his Sacred Maiesty, in whose auspicious Raigne, and by whose wisdom, fauour, and gracious furtherance, this famous Worke is brought to passe, to the vnspeakeable benefit of his flourishing Kingdomes, and to the euerlasting glory, and immortal name of them, by whom this happy discouery must bee perfected? But for this purpose, I referre you farther to the Treatise of the West and North-west passage to the South Sea by *Virginia*, written by that excellent Mathematician Master *Henry Briggs*, and lately

lately published, as also to his Map thereof, with
a more large Discourse, shortly to come forth in
Print.

Lastly, remember now and practise what I haue
said, and in despite of malice, you shall finde all
solid truth that I haue spoken to you. I take my
leauē, and as I haue blessed you many
wayes, so giue I to all of you my hearty
blessing. Prosper and
farewell.

FIN IS.

